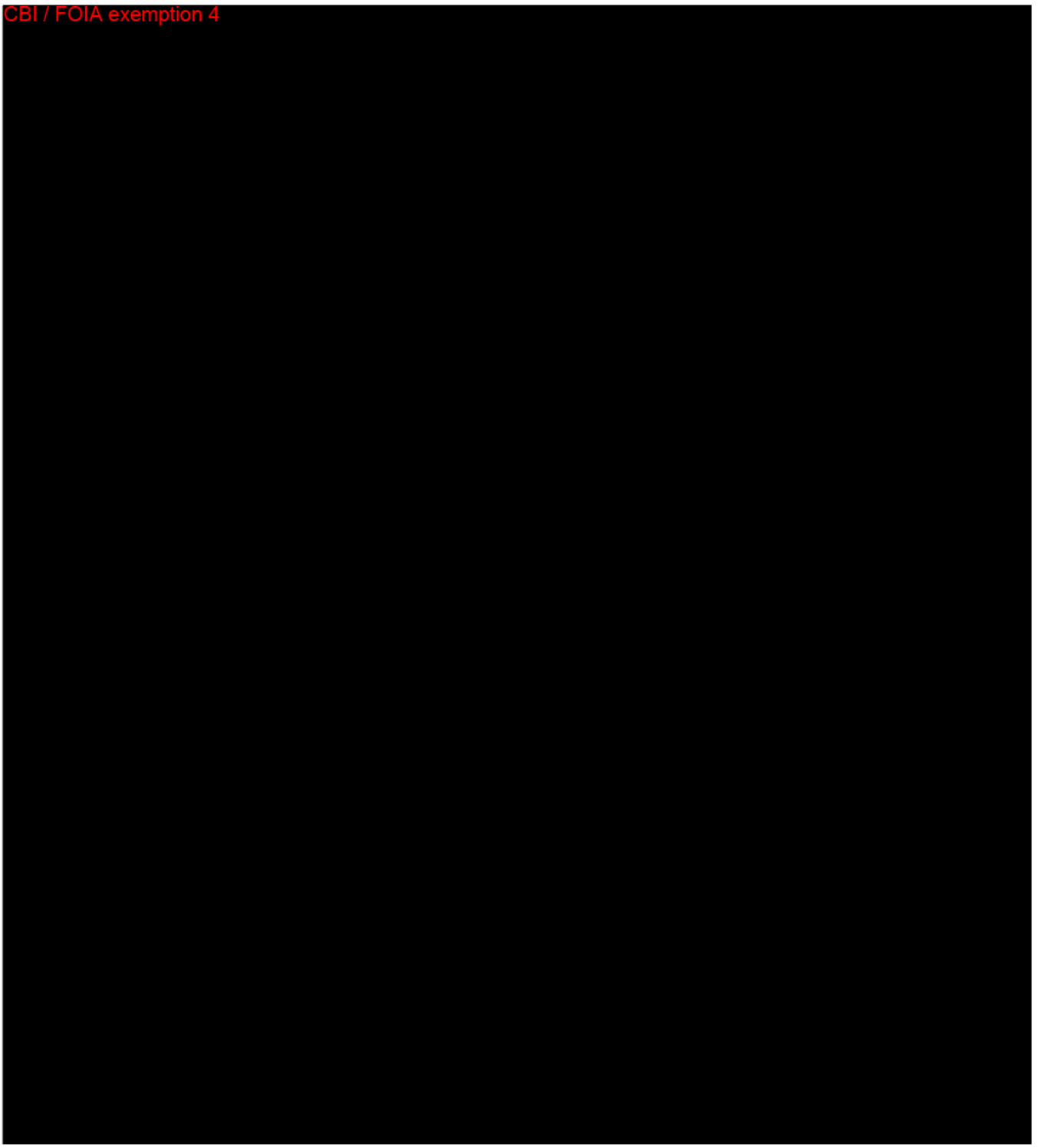

CBI / FOIA exemption 4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TAB 1

IN THE CIRCUIT COURT OF HARRISON COUNTY, WEST VIRGINIA

LENORA PERRINE, CAROLYN HOLBERT,
WAUNONA MESSINGER CROUSER,
REBECCAH MORLOCK, ANTHONY BEEZEL,
MARY MONTGOMERY,
MARY LUZADER, TRUMAN R. DESIST,
LARRY BEEZEL, and JOSEPH BRADSHAW,
individuals residing in West Virginia,
on behalf of themselves and all others similarly situated,

Plaintiffs,

v. Case No. 04-C-296-2

E.I. DU PONT DE NEMOURS AND COMPANY, a Delaware corporation doing business in West Virginia, MEADOWBROOK CORPORATION, a dissolved West Virginia corporation, MATTHIESSEN & HEGELER ZINC COMPANY, INC., a dissolved Illinois corporation formerly doing business in West Virginia, NUZUM TRUCKING COMPANY, a West Virginia corporation, T.L. DIAMOND & COMPANY, INC., a New York Corporation doing business in West Virginia, and JOE PAUSHEL, an individual residing in West Virginia

Defendants.

_____/

PLAINTIFFS' MOTION FOR SUMMARY JUDGMENT FINDING DUPONT RESPONSIBLE FOR THE CONDUCT OF GRASSELLI CHEMICAL COMPANY

In 1928, Dupont made its entry into the commercial chemical business by purchasing the entire Grasselli Chemical Company. This purchase included Grasselli's smelting operation in Spelter. Dupont's acquisition of Grasselli makes it responsible for the conduct of Grasselli, and Plaintiffs are entitled to summary judgment on this issue.

Pursuant to West Virginia Rule of Civil Procedure 56, Plaintiffs, by and through counsel, hereby move for summary judgment against Defendant E.I. du Pont de Nemours and Company (Dupont) finding Dupont liable for Grasselli Chemical Company

(Grasselli). There is no genuine issue as to any material fact and Plaintiffs are entitled to judgment as a matter of law on this issue. Plaintiffs respectfully ask the Court to find Dupont liable for Grasselli.

Statement of Facts

Plaintiffs' Second Amended Class Action Complaint dated August 31, 2005, alleges:

> 17. Defendant Dupont is a Delaware corporation that conducts business in the State of West Virginia and has a principle place of business at 1007 Market Street, Wilmington, Delaware 19898. Dupont began operating the Spelter Smelter facility in 1928. Dupont is liable for the operations of the Spelter Smelter facility back to 1910, through the operations of its predecessor in interest in the operation of the Spelter Smelter facility, Grasselli Chemical Corporation ("Grasselli"). Grasselli opened the Spelter Smelter facility in 1910, merged into Dupont in 1928, and was the predecessor to Dupont's Grasselli Chemicals Department. Dupont reacquired sole ownership of the Spelter Smelter facility in or about 2001 and is the current owner of the facility site. As used below, Dupont encompasses Grasselli.

Dupont's Second Amended Answer, served on September 21, 2005, in turn states:

> 17. DuPont admits that it is a Delaware corporation; that it conducts business in the State of West Virginia; and that its principal place of business is 1007 Market Street, Wilmington, Delaware. DuPont further admits that it operated the facility between November 30, 1928, and August 24, 1950. DuPont further admits that it acquired the Grasselli Chemical Company which had operated the facility from 1910 to 1928; that DuPont reacquired the ownership of the facility in 2001; and that DuPont is the current owner of that site. DuPont denies the remaining allegations contained in Paragraph 17 of the Complaint.

Thus, Dupont's pleading admits that Dupont acquired Grasselli and operated the facility from 1928 to 1950 but impliedly denies that Dupont is liable for Grasselli's conduct from 1910 to 1928.

Grasselli, the predecessor of DuPont's commercial chemical empire,[1] was one of the first diversified chemical companies with plants located throughout the United States. In 1910, Grasselli purchased Powder Hill in West Virginia for the purpose of constructing a zinc smelter.[2] Powder Hill, now known as Spelter, was originally founded before 1900 by the Du Pont Powder Company, a Dupont subsidiary. Grasselli constructed a horizontal retort zinc smelter on the former powder plant property. As well as owning the smelter, Grasselli owned the community of Spelter, home to many of the smelter workers.

In 1928, DuPont, incorporated in Delaware, acquired the entire Grasselli Chemical Company, incorporated in Ohio, in a stock swap. Dupont continued operations with Grasselli management under the Grasselli name, including at the Spelter Smelter facility, using a Delaware company with the same name. The previous Ohio version of the Grasselli Chemical Company was dissolved "after distribution of du Pont Co. shares received in exchange for business and properties." *See* Exhibit 3 (attached hereto) at DPZ0001576.

The acquisition is referenced in Dupont records variously as a consolidation and a merger.[3] In any event, significantly, Dupont records demonstrate that in 1928 Dupont not

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[1] Grasselli history continues to be referenced at the Dupont website. *See* http://heritage.dupont.com/touchpoints/tp_1928-3/overview.shtml

[2] Exhibit 1 (attached hereto), A. B. Morrison, *The Grasselli Chemical Company Meadowbrook Plant Harrison County, West Virginia* (1969); Exhibit 2 (attached hereto), A. B. Morrison, *Brief History Meadowbrook Plant* (1964).

[3] Dupont's 1929 Annual Report (attached hereto as Exhibit 5), at DPZ0001610 and DPZ0001611, stated:

> Your company's volume of business for the year 1929 was about 13% larger than for the previous year after adjusting the 1928 volume of sales to include, for comparative

only acquired Grasselli in totality and continued operations with the same management but also ***expressly assumed the liabilities of Grasselli.*** Dupont's 1928 Annual Report (attached hereto as Exhibit 4) at DPZ001591-DPZ001592, stated:

> The importance of your company's position in the chemical industry in this country has been considerably increased and strengthened over the course of the year by the consolidation with your company of the operations and business of The Grasselli Chemical Company, of Cleveland, Ohio.
>
> ***
>
> The basis of consolidation of the activities of these two companies involved the receipt by the common stockholders of the former Grasselli Chemical Company of one-fifth of a share of the no par value common stock of the du Pont Company for each share of the common stock of The Grasselli Chemical Company, requiring a total of 149,392 shares of du Pont no par value common stock, and the acquisition by the du Pont Company of all of the properties and business of The Grasselli Chemical Company, *subject to the assumption by du Pont Company of all of the liabilities of The Grasselli Chemical Company.*

(Emphasis added). Likewise, the descriptions in Dupont's records of its various Grasselli corporate dealings acknowledge this assumption of liabilities:

> purposes, the business of The Grasselli Chemical Company which was consolidated with your company in December, 1928.
>
> ***
>
> The results which were anticipated by the consolidation of the activities of The Grasselli Chemical Company with those of du Pont Company have been fully up to expectations.

See also Exhibit 6 attached hereto, at DPZ0316676:

> A year after his death, in October 1928, the Grasselli and the du Pont interests were merged, and one hundred fifth thousand shares of du Pont stock, with a market value at the time of over $64,000,000, were exchanged. The consolidation was consummated by T. S. Grasselli and Lammot du Pont, whose fathers, C. A. Grasselli and Lammot du Pont, had, back in the early 80's, seriously considered a combination of their interests. ...

Id. at DPZ0316679:

> **HISTORY OF GRASSELLI PLANTS**
> **WAREHOUSES AND PROPERTIES**
> **1839—1938**
>
> ***
>
> Merger with E. I. du Pont de Nemours & Company Nov. 1928

> In order to increase its own general chemical business and obtain a position in the Middle West, the du Pont Co. started negotiations in 1928 for the acquisition of the business and properties of The Grasselli Chemical Company (Ohio). An agreement of reorganization dated October 23, 1928 between du Pont Co. and The Grasselli Chemical Company (Ohio) provided that Grasselli transfer all of its assets to du Pont in consideration for which du Pont would assume the liabilities of Grasselli ... .

Exhibit 3 (attached hereto) at DPZ0001577; *see* also at DPZ0001580.

Eight years later, DuPont took title to the site and the town of Spelter from its Delaware Grasselli subsidiary. The Delaware version of Grasselli likewise was dissolved with a Dupont assumption of liabilities. *See Da Cunha v. Grasselli Chemical Co.*, 46 F.Supp. 28, 29 (D.N.J. 1942) (attached hereto as Exhibit 7) ("The defendant, Grasselli Chemical Company, was formerly a Delaware corporation, authorized to do business in New Jersey, by compliance with New Jersey Revised Statutes 14:15-3, N.J.S.A. 14:15-3, etc. This company has been duly dissolved and the other defendant, E. I. Du Pont De Nemours and Company, has succeeded to its rights and liabilities."). Therefore, from 1936 until 1950, DuPont, like its predecessors for whom it had assumed liabilities, held title to the smelter and entire town of Spelter.

Legal Argument

Under West Virginia Rule of Civil Procedure 56(a), a party seeking to recover upon a claim may, at any time after the expiration of 30 days from the commencement of the action, move with or without supporting affidavits for a summary judgment in the party's favor upon all or any part thereof. The itemization in West Virginia Rule of Civil Procedure 56(c) is not exhaustive, and documents may be considered on summary judgment motion. *See Litigation Handbook on West Virginia Rules of Civil Procedure*, Second Edition, § 56(c)[5]*[d]*, pp. 1258-59. Summary judgment on the successor

liability issue is appropriate where the record is clear. *See Jordan v. Ravenswood Aluminum Corporation*, 193 W.Va. 192, 194-95, 455 S.E.2d 561, 563-64 (1995) (summary judgment for successor corporation appropriate where "record, as developed in the present case, rather clearly shows that Steiner Turf Equipment, Inc., did not expressly or impliedly assume the debts or obligations of the Steiner Corporation when it purchased the tractor manufacturing assets of the Steiner Corporation.").

DuPont records demonstrate that it is responsible under West Virginia law for the conduct of Grasselli. Successor liability is discussed in detail in *Davis v. Celotex Corporation*, 187 W.Va. 566, 571-72, 420 S.E.2d 557, 562-63 (1992):

> Even at common law, there were a number of well-settled exceptions that would result in a transferee corporation being liable. These exceptions are outlined in 19 Am.Jur.2d *Corporations* § 2705 at 515 (1986):
> "-*there is an express* or implied *assumption of liability*;
> "-the transaction amounts to a consolidation or merger;
> "-the transaction was fraudulent;
> "-some of the elements of a purchase in good faith were lacking, as where the transfer was without consideration and the creditors of the transferor were not provided for;
> "-the transferee corporation was a mere continuation or reincarnation of the old corporation." (Footnotes omitted).
>
> ***
>
> In Syllabus Point 2 of *Billmyer Lumber Co. v. Merchants' Coal Co.*, 66 W.Va. 696, 66 S.E. 1073 (1910), we also recognized that an *agreement* by a corporation *to* purchase another corporation's assets and *assume its liabilities* made the purchaser liable for the other's debts:
> "When property has been conveyed in consideration of the assumption by the grantee of all the indebtedness of the grantor, any creditor of the latter may charge the property in the hands of the grantee with his debt, and subject the same to payment thereof."
>
> ***
>
> Thus, we conclude that a successor corporation can be found liable for the debts and obligations of a predecessor corporation if there was *an express* or implied *assumption of liability*, if the transaction was fraudulent, or if some element of the transaction was not made in good faith. Successor liability will also attach in a *consolidation or merger* under W.Va.Code, 31-1-37(a)(5). Finally, such

liability will also result where the successor corporation is a *mere continuation or reincarnation of its predecessor.*

(Emphasis added.) If any of these grounds exists, successor liability applies.

In this case, Dupont's acquisition meets at least three alternative grounds for successor liability. First, Dupont is liable for Grasselli because it expressly assumed such liability. Second, Dupont is liable because Grasselli was consolidated or merged with Dupont. Third, Dupont is liable because the Dupont operation, using a Dupont-created Delaware version of Grasselli with the same management and same business, was a mere continuation or reincarnation of its predecessor.[4]

Moreover, Dupont's successor liability is not limited to compensatory relief. This was not a mere acquisition. *See Davis v. Celotex*, 187 W.Va. at 572, 420 S.E.2d at 563 ("it is the acquisition or merger of a company, *along with the express assumption of liability*, that makes a successor corporation liable for punitive damages") (emphasis added). Dupont had a "full panoply of corporate transformations at its disposal," and was

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[4] *Davis v. Celotex Corporation, supra,* involved Celotex, an Ohio company sued in a tort action. Hence, West Virginia law should be applied to determine successor liability in a tort action. *See also Duca v. Raymark Industries*, 1986 WL 12770, *2 and n. 1 (E.D.Pa.) ("third approach, viewing the question of successor liability as one to be decided entirely under the law of the state whose tort law otherwise governs the case") ("We can assume that this third approach has been taken by those courts that decided the question of Celotex's liability for punitive damages without discussing the law of the jurisdictions in which the relevant entities were incorporated."); *cf. State ex rel. Elish v. Wilson*, 189 W.Va. 739, 746, 434 S.E.2d 411, 418 (1993) ("local law of the state of incorporation should be applied to determine who can bring a shareholder derivative suit."); *see also Carter Enterprises, Inc. v. Ashland Specialty Company, Inc.*, 257 B.R. 797, 802 (S.D.W.V. 2001) (applying *Elish v. Wilson* in bankruptcy case involving creditor-debtor relations). Nonetheless, if Delaware or even Ohio law were applied to this question, one would arrive at the same conclusion because each state recognizes the *Davis v. Celotex Corporation* exceptions applicable in this case. *See Rohn Industries, Inc. v. Platinum Equity LLC*, 887 A.2d 983, 996 (2005); *Pilkington N. Am., Inc. v. Travelers Cas. & Sur. Co.* 112 Ohio St.3d 482, 861 N.E.2d 121, 130 (2006).

the molder of its own destiny. *Id.* (citing approvingly *Celotex Corp. v. Pickett,* 490 So.2d 35, 38 (Fla.1986)). Dupont's liability for Grasselli also attaches to punitive damages.

WHEREFORE, Plaintiffs respectfully move for summary judgment finding Dupont liable for Grasselli.

Dated: July 9, 2007

Perry B. Jones, WVSB #9683
WEST AND JONES
360 Washington Avenue
Clarksburg, WV 26302
Phone (304) 624-5501
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IN THE CIRCUIT COURT OF HARRISON COUNTY, WEST VIRGINIA

LENORA PERRINE, CAROLYN HOLBERT,
WAUNONA MESSINGER CROUSER,
REBECCAH MORLOCK, ANTHONY BEEZEL,
MARY MONTGOMERY,
MARY LUZADER, TRUMAN R. DESIST,
LARRY BEEZEL, and JOSEPH BRADSHAW,
individuals residing in West Virginia,
on behalf of themselves and all others
similarly situated,

Plaintiffs,

v. Case No. 04-C-296-2

E.I. DU PONT DE NEMOURS AND COMPANY,
a Delaware corporation doing business in West
Virginia, MEADOWBROOK CORPORATION, a
dissolved West Virginia corporation,
MATTHIESSEN & HEGELER ZINC
COMPANY, INC., a dissolved Illinois corporation
formerly doing business in West Virginia,
NUZUM TRUCKING COMPANY,
a West Virginia corporation,
T. L. DIAMOND & COMPANY, INC., a New York
corporation doing business in West Virginia, and
JOE PAUSHEL, an individual residing
In West Virginia,

Defendants.

/

CERTIFICATE OF SERVICE

I, Perry B. Jones, counsel for Plaintiffs, hereby certify that service of "PLAINTIFFS' MOTION FOR SUMMARY JUDGMENT FINDING DUPONT RESPONSIBLE FOR THE CONDUCT OF GRASSELLI CHEMICAL COMPANY" has been made upon counsel of record by Federal Express Overnight Mail on this the 9th day of July, 2007, addressed as follows:

David B. Thomas
James S. Arnold
Wm. Scott Wickline
Stephanie D. Thacker
ALLEN GUTHRIE McHUGH & THOMAS, PLLC
500 Lee Street, East, Suite 800
P.O. Box 3394
Charleston, WV 25333-3394

Perry B. Jones (WV 9683)

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EXHIBIT 1

THE GRASSELLI CHEMICAL COMPANY
MEADOWBROOK PLANT
HARRISON COUNTY, WEST VIRGINIA

By deed dated April 7, 1910, the Grasselli Chemical Company purchased about 200 acres of land on "Powder Hill" (now known as Spelter) from E. I. du Pont Powder Company for $10,000. The Grasselli Chemical Company immediately built a passenger swinging bridge over the West Fork river to the interurban station known as Ziesing (named for Richard Ziesing, manager of Grasselli's Zinc Division).

They also started construction for a zinc smelting plant and building homes for their employees at Spelter. The plant started production during late 1911 and by 1916 the townsite consisted of 175 homes, two churches, three stores and a good school building and had a population of 1500. The plant by 1916 had 20 horizontal retort type furnaces in operation, each furnace had 420 retorts or a grand total of 8400 retorts, which at that time was the largest zinc plant in the United States. The furnaces were first fired with natural gas and later by coal burning gas producers.

The plant was owned and operated by the Grasselli Chemical Company until November 1928 when Grasselli Chemical Company by merger was taken over by E. I. du Pont de Nemours & Company. During 1929, and 1930 all of the old horizontal retort furnaces

EXHIBIT 1

were closed down and 16 vertical type retort furnaces were constructed. The new type furnaces started production late in 1930, and operations continued under Du Pont until August 31, 1950, when the plant was sold to the oldest incorporated (1858) zinc company in the United States, the Matthiessen & Hegeler Zinc Company, LaSalle, Illinois.

An extensive modernization program was started during 1952, by adding four new vertical type furnaces and numerous other improvements to make it modern and up-to-date. The plant has operated for more than 58 years with but very few interruptions.

Each of the following men had more than 50 years service at the Meadowbrook Plant when they retired, Herman A. Gronemeyer, Albert B. Morrison, Samuel C. Loria, Eugenio Alvarez, Joe M. Vasquez.

The townsite, dwellings, and passenger swinging bridge over the West Fork river were sold by Du Pont in September 1950, to John J. Mochetta who immediately dismantled the bridge and sold the houses to the employees occupying them at that time.

Zinc is a very old non-ferrous metal. Zinc ore is mined in 17 states and many foreign countries. It is processed or roasted before it is shipped to Meadowbrook Plant. Zinc is usually cast into slabs or ingots (Spelter) and its uses are quite numerous. The main ones being for galvanizing (protecting steel against

corrosion); die casting; galvanic protection; electroplating and zinc dust paints; industrial chemical uses; sheet and rolled zinc products; roofing and siding materials; downspouts, gutters in home and industrial building construction, etc.

During the 58 operating years the Meadowbrook Plant produced more than four billion pounds of slab zinc; 400 million pounds zinc dust; 100 million pounds of anodes; and 50 million pounds other alloys.

Meadowbrook Plant
Closed down
7-3-71

A. B. Morrison

1960

DPZ0269458

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EXHIBIT 2

MEADOWBROOK PLANT

By

A.B. Morrison 2/20/64

The plant site was originally known as Powder Hill. Du Pont Powder Company purchased the land and located a Powder Plant on the property sometime before 1900. The Powder Mill operated for several years but was closed down after an explosion during the year 1901. Some buildings constructed before 1900 by the Powder Company are in use today. They consist of the dwellings occupied by J.T. Walsh, Mrs. James Leasure, Fred Hickman and Umberto Roschalla; also, the Yard Office Building and the galvanized sheet iron building now used as a garage for trucks.

Soon after the explosion the property was sold to the Fairmont Coal Company (now Consolidation Coal Company) who in 1910 sold it and leased approximately 300 acres of Pittsburgh Coal to The Grasselli Chemical Company. The Grasselli Chemical Company immediately started construction for a plant and building homes for their employees. The plant started production during the year 1911 and by 1916 the Townsite consisted of 175 houses.

During the early days we had no automobiles and no improved highways. Travel was by foot, interurban line or train. The only access to the plant was the Baltimore & Ohio Railroad, horse drawn vehicles which had to ford the river, or by foot. The Fairmont & Clarksburg Traction Company operated trolley cars on an hourly schedule on the West side of the river and the plant stop was "Ziesing" (named for Richard Ziesing, General Manager of The Grasselli Zinc Division).

EXHIBIT 2

A passenger swinging bridge across the West Fork River (built in 1910) was used by the employees and town people traveling to or from the interurban station.

In order to provide access to the highway an old bridge was moved from Lumberport-Haywood area and installed across the West Fork River during 1914. It was of steel construction with a wood floor and designed for horse drawn vehicles - maximum load limit 5,000 pounds Later changed to 10,000 pounds. Early in 1962 construction was started on a new concrete bridge located 1/8 mile North of the old bridge - estimated cost $200,000.00 of which the Matthiessen & Hegeler Zinc Company donated $20,291.18 for right-of-way and engineering. The bridge was opened for traffic October 29, 1962.

The townsite was included with the plant transfer to E.I. du Pont de Nemours & Company in 1928. During 1950 du Pont sold the townsite, including the swinging bridge, to John J. Moschetta who immediately sold the houses to the employees occupying them at that time. The swinging bridge was dismantled by Mr. Moschetta early in 1951.

The coal mine which was opened during 1916 was sold to The Consolidation Coal Company by du Pont in September 1950. The mine now operates under the name of Maureen Coal Company and supplies our Bituminous Coal requirements.

The Grasselli Chemical Company also owned and operated a natural gas field to furnish fuel for Meadowbrook and Grasselli Plants. This gas field extended over much of Harrison County. They operated a gas compressor station at Wolf Summit and trunk lines for gas extended from the wells located at Wolf Summit,

Lost Creek, Lumberport, Grasselli (now Anmoore), Glen Falls and Meadowbrook. The gas wells and lines were sold in 1927 to The Hope Natural Gas Company.

An Ice Plant was constructed and production started in 1915 to supply ice for plant and people living in townsite. The Ice Plant was closed down during 1935.

Mr. E.W. Eakin was Superintendent from 1911 to 1919 at which time Herman A. Gronemeyer was promoted from Assistant to Works Manager and continued until he was elected Vice President of Meadowbrook Corporation effective October 1, 1957. Mr. Gronemeyer retired from active duty December 31, 1961, with 50 years of service. George Hill was assistant to Gronemeyer for a few years before his death in 1934. Thomas R. Ferguson was Assistant Works Manager from September 1948 and Works Manager since October 1, 1957.

Chief Clerk - Control Manager

J. Ray Andrews ---------- 1911 to 1917
Fred M. Swisher ---------- 1917 to 1950
* Albert B. Morrison --------- 1950 to ____
* Assistant to Works Manager - 10/1/57 to Dec 1965
Richard Monroe

Furnace Foreman

Antone Fernandez ---------- 1911 to 1919
James Chinault ---------- 1919 to 1930
Fred M. Stalnaker ---------- 1930 to 1950
Richard D. Carrico --------- 1950 to 1956
Paul F. Craig ---------- 1956 to ____
Wm. Perry

BRIEF HISTORY OF THE MEADOWBROOK PLANT - (Cont'd)

	Began Operation	Discontinued Operation
Plant Established	1910	
Spelter (Blocks 1, 2, 3 and 4)	1911	1930
Spelter (Blocks 5, 6, 7, and 8)	1912	1930
Spelter (Blocks 9 and 10)	1915	1930
Coal Mine Opened	1916	
Gas Producers	Nov. 1916	1946
Fire Brick	1919	1924
Zinc Anodes and Battery Zincs	1927	Battery Zincs out
Mine leased to Maureen Coal Company	1928	
Vertical Retort Furnaces (16 built)	Aug. 1930	
Zinc Dust Furnaces (Dross)	Apr. 1930	
Copper-Cadmium Alloy	Feb. 1934	1936
Sodium-Zinc Alloy	Mar. 1934	
ZIN-O-LYTE Anodes	Oct. 1936	Sept 1951
Cadmium Anodes	Jan. 1937	1938
Sodium-Lead Alloy	Mar. 1937	
Cadmium-Zinc Alloy	July 1939	1943
Zinc Oxide Fume	May 1940	
Lead Anodes	Sept.1942	Aug.1950
Natural Gas Firing	Dec. 1946	
Ball Type Anodes	Aug. 1946	
Zinc Dust Furnaces (11 and 12)	July 1948	
ZINAMED Anodes	Sept 1951	
ZINAMERC Anodes	Sept 1951	
ZINABRITE Anodes	Sept 1951	

The plant was constructed, owned and operated by The Grasselli Chemical Company until December 1, 1928, when it was transferred to E.I. du Pont de Nemours & Company. Du Pont operated the plant for 22 years, or until the close of business on August 31, 1950. Beginning September 1, 1950, the plant operated under the name of the Meadowbrook Corporation which was a wholly owned subsidiary of the Matthiessen & Hegeler Zinc Company of La Salle, Illinois. Effective April 1, 1961, the plant has operated under the name of The Matthiessen & Hegeler Zinc Company (Meadowbrook Works).

During the past 53 years the plant has operated continuously except for labor trouble during the years --

1913 - April	Down for 10 days
1919 - June-August	Down for 75 days
1920 - August-November	Down for 87 days

Construction began in 1910 and 8 horizontal retort furnaces started producing slab zinc during 1911. During the year 1915 10 blocks or 20 furnaces of 420 retorts each - making a total of 8,400 retorts. It was the largest horizontal retort zinc plant in the United States. First construction was 6-row type, but furnaces were later changed to 3-row high, 21-section furnaces.

The furnaces were fired with natural gas until 1916 when coal-fired gas producers were installed. This method of firing continued until all old furnaces were shut down in 1930. Coal mine was opened early in 1916 to supply the coal for 10 gas producers.

Generated own power from February 11, 1911, to July 1930, and again from September 1933 to December 1946. Purchased power from July 1930 to August 1933 and again from December 1946 to the present time.

furnaces (New Jersey Zinc Patents) and all were in production during the year 1930. These furnaces were fired with producer gas from 1930 until December 1946 when natural gas was again used for fuel.

During 1951, No. 17 Vertical Retort was built and started production. No. 18 Vertical Retort was constructed early in 1952. All Vertical Retorts were originally 5' 1-1/4" and through the years when necessary to rebuild, the size was increased to 6' 1-1/2".

An extensive modernization program was started in 1952 which included raising the roof 15 feet on the V.R.F. Building and also the building of No. 1 Silo.

Splash Condensers on all retorts - 1953-1954

Autogenous Cokers No. 1 - 9/18/53
No. 2 - 3/3/54
No. 3 - 9/24/54

3rd Chaser now known as No. 1 was started up May 26, 1953.

No. 1 West Holding Pot May 13, 1953

No. 2 East Holding Pot March 23, 1961

Retort height increased to 33 ft.-

No. 1, 15 and 16 - 1957
2, 3 and 4 - 1958
11, 12, 13, 14 - 1959
5, 6, 7 and 8 - 1960
9, 10, 17, 18 - 1961

No. 2 retort size was increased to 6' 10-1/2" in 1962.
No. 11 retort size was increased to 6' 10-1/2" x 10" wide in 1964.

Coker Improvements:

No. 2	4 ft. extension to grid bars	3/28/61
No. 1	8 ft. extension to grid bars	10/23/61
No. 3	4 ft. drying chamber	4/21/61

Stack

The 175 ft. Concrete Shell, brick lined stack constructed by Custodis in 1963-64. When in operation it will eliminate the Hot Fans and Peabody Coolers.

Ponds

Two (2) Settling Ponds to prevent coal dust from flowing into the river were constructed and placed in operation during 1963.

New Construction

Scheduled construction for 1964 includes No. 2 Silo and building a Refining Column for the elimination of Cadmium.

Rambling

Maurean Coal Company Mine closed down March 31, 1954, and did not start up again until March 14, 1956. During the period the mine was down, we used Consolidation Coal Company coal from Arkwright Mine near Morgantown, W. Va.

For 6 months during 1943, two Vertical Retort Furnaces were converted to the production of Zinc Dust. This was due to the demand for Zinc Dust during the war.

Old Horizontal Furnace Building covering Blocks 3, 4, 5 and 6; also, No. 3 Coal Trestle was dismantled during 1941.

Overhead Storage Bins 1 to 12 dismantled 1961.

Overhead Storage Bins 13 to 24 dismantled 1962.

Brick Storage Bins 25 to 30 dismantled 1962.

Zinc Dust

Ajax Induction Furnaces:

"A"	in service	5/26/52
"B"	" "	9/15/52
"C"	" "	8/18/59
"D" (large)	in service	11/8/61

Started experimenting with Blown Zinc Dust September 1958.

Alpine Zinc Dust Separater - 1963.

Plant Closed June 1971

Wm. Geilbaugh - Plant Superintendent
Wm Perri - Furnace Head
Warren McIntyre - Yard Supervisor
Joe Pa[illegible]shell - Maintance Supervisor

The above stayed on at the plant for shut down & to fight the Fire of the Residue Pile.

T L Diamond Started in JAN. 72

Warren McIntyre being the only man Staff member hired by T L Diamond to Start up the Zinc Dust Furnaces

Zinc Dust Production started under T L Diamond in March of 1972 - Vern Simkans plant manager. Fired after Aprox 1 Year & John Wehn became plant manager

Warren McIntyre quit in June 1973 & went to Fourco Gla

DPZ0203625

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EXHIBIT 3

THE GRASSELLI CHEMICAL COMPANY (DELAWARE)
(12-11-36 - 1-14-74)

Significant dates:

Incorporated: December 11, 1936 (Delaware)

Du Pont entry into company: Formed by Du Pont, but no stock was ever issued.

Du Pont acquired 100%: No stock ever issued.

Years included in consolidation: Company never had any income, assets or business transactions.

Disposition: January 14, 1974 (dissolved).

Principal products and/or nature of business:

This company was formed for the sole purpose of protecting the corporate name of The Grasselli Chemical Company.

Plants: None

Directors and officers just prior to dissolution:

Directors

Henry T. Bush, Jr.	Samuel A. Milliner, Jr.
Thomas E. Clough	Louis R. Wonderly

Officers

President:	Henry T. Bush, Jr.
Vice President:	Thomas E. Clough
Treasurer:	Samuel A. Milliner, Jr.
Asst. Treasurer:	Louis R. Wonderly
Secretary:	Samuel A. Milliner, Jr.
Asst. Secretary:	Louis R. Wonderly

History of company:

The Grasselli Chemical Company was incorporated in Delaware on December 11, 1936 for the purpose of protecting the corporate name of The Grasselli Chemical Company (Delaware) which was dissolved as of October 31, 1936, when its assets were transferred to the Du Pont Company.

EXHIBIT 3

THE GRASSELLI CHEMICAL COMPANY (DELAWARE)
(12-11-36 - 1-14-74)

History of company (cont'd):

On January 4, 1974, the directors signed a Certificate of Dissolution and on January 14, 1974, this was filed with the Delaware Secretary of State, officially dissolving the company.

History of investment: No stock was ever issued.

Capitalization just prior to dissolution:

	Shares Authorized	Issued	Owned by	Shares	%
Common stock ($100 par value)	250	-	Stock was not issued.		

Records:

Basic records of the company have been delivered to the Secretary of the Company for storage at the Hall of Records.

GRASSELLI CHEMICAL COMPANY, LTD.

Significant Dates

Incorporated: 1911

Du Pont entry into Company: November 20, 1928.

Du Pont acquired 100%: November 20, 1928.

Years included in Consolidation: None.

Disposition: Sold as of December 1, 1928.

Principal products and/or nature of business

Operating a chemical plant and owning ore mines.

Plant

Hamilton, Ontario, Canada.

Officers and Directors at date of sale

Officers		Directors
President:	E. R. Grasselli	E. R. Grasselli
Vice President:	T. S. Grasselli	T. S. Grasselli
Treasurer:	E. R. Grasselli	E. R. Bailey
Secretary:	E. R. Bailey	H. P. Mansfield
		O. M. Hook

History of the Company

Among the assets of the Grasselli Chemical Company (Ohio) were 1,005 shares of the common stock of The Grasselli Chemical Co., Ltd., a Canadian corporation, representing 100% ownership in it. This stock, which was carried on Grasselli (Ohio) books at its par value $100,500, was, upon the consolidation of Grasselli (Ohio) with the du Pont Co., set up on the books at the net asset value as at November 30, 1928 of $1,674,341.47. Shortly after the acquisition, negotiations for the sale of this company to Canadian Industries Ltd. were completed

GRASSELLI CHEMICAL COMPANY, LTD.

History of Company (Continued)

whereby C.I.L. was to acquire all of the assets excluding certain ore properties and land which were to revert to the du Pont Company. The composition of the sale price as at December 1, 1928 follows:

Base Purchase Price	$1,291,000.00
Ore Properties and Land (to be excluded from assets taken over)	354,703.18
Adjustment for increase of Working Capital between 12/31/27 and 11/30/28	25,138.29
Paid by Canadian Industries Ltd.	$1,670,841.47

The ore properties and land were repurchased by the du Pont Co. and transferred to the newly formed Grasselli Chemical Co. (Delaware) at cost ($354,703.18), and later included among the assets of a new company, Canadian Pyrites Ltd.

History of Investment

Date	Shares	Recorded on Books	Remarks
12/31/28	1,005	$1,674,341.47*	Value assigned to the stock upon acquisition from The Grasselli Chemical Co. (Ohio) as of 11/30/28.
"	(1,005)	(1,670,841.47)	Sold to Canadian Industries Ltd.
"	-	(3,500.00)	Adjustment to the increase in Working Capital (which was included in the sale price) resulting from allowance for bad debts.
	- 0 -	- 0 -	

*Computed as follows:

Purchase price, agreed upon by Canadian Industries Ltd., based upon a Net Working Capital as at 12/31/27 of $516,972.24		$1,291,000.00
Value of property not included in purchase price which is to be re-sold to the du Pont Co.: -		
Ore Properties and Land		354,703.18
Increase in Net Working Capital:		
as at 12/31/27	$516,972.24	
as at 11/30/28	545,610.53	28,638.29
		$1,674,341.47

GRASSELLI CHEMICAL COMPANY, LTD.

Capitalization at Date of Sale

	Shares Authorized	Shares Issued	Owned By
Common Stock par value $100	2,500	1,005	Du Pont Company

Records

The records were maintained by employees of The Grasselli Chemical Co. The Company's general ledger, journals, and vouchers for the period subsequent to 1927 were delivered to Canadian Industries, Ltd. upon completion of the sale. Prior records are on file in the General Ledger Division's basement vault.

THE GRASSELLI CHEMICAL COMPANY (OHIO)

Significant Dates

Incorporated: June 10, 1885.

Du Pont entry into Company: December 1, 1928.

Du Pont acquired 100%: Not applicable.

Years included in consolidation: None

Disposition: Dissolved after distribution of du Pont Co. shares received in exchange for business and properties.

Principal Products and/or Nature of Business

Manufactured heavy chemicals, acids, fertilizers, zinc products, insecticides, fungicides and explosives.

Plants: Grasselli, N.J.; East Chicago, Terre Haute and Fortville, Ind.; Cleveland, Canton, Lockland, Niles and Toledo, Ohio; Birmingham, Dothan and Gadsden, Ala.; Meadowbrook and Weirton, West Va.; Wurtland, Ky.; Beaver Falls, New Castle, Quaker Falls, Sinnemahoning and Walford, Pa.; Seneca, Ill.; and Hamilton, Ontario, Canada.

Last Officers and Directors

Officers		Directors
President:	T. S. Grasselli	T. S. Grasselli, Chairman
First V-P. and Treasurer:	E. R. Grasselli	A. C. Bailey, E. R. Bailey, W. T. Cashman, J. H. Dunbar,
Vice-Pres.:	G. E. Fisher, A. C. Bailey & J. H. D. Rodier	G. E. Fisher, E. W. Furst, E. R. Grasselli, O. M. Hook, H. P. John, H. P. Mansfield
Secretary:	E. R. Bailey	J. W. O'Brien, J. H. D. Rodier, S. Russell and A. Squire

History of Company

The business was founded by E. R. Grasselli in Cincinnati in 1839, and engaged principally in the development of sulphuric acid and other mineral acids. In 1869, a plant was started in Cleveland, Ohio, for the production of a similar line of products. In 1885, The Grasselli

THE GRASSELLI CHEMICAL COMPANY (OHIO)

History of Company (Continued)

Chemical Company (Ohio) was incorporated and in 1889, the Marsh & Harwood interests joined the company. There followed a period of expansion of plant investment and diversification of product until in 1928 the company ranked among the foremost producers of chemicals in the United States.

In order to increase its own general chemical business and obtain a position in the Middle West, the du Pont Co. started negotiations in 1928 for the acquisition of the business and properties of The Grasselli Chemical Company (Ohio). An agreement of reorganization dated October 23, 1928 between du Pont Co. and The Grasselli Chemical Company (Ohio) provided that Grasselli transfer all of its assets to du Pont in consideration for which du Pont would assume the liabilities of Grasselli, including obligation to redeem its Preferred Stock on December 31, 1928, and deliver no par value common shares equal in number to one-fifth of the outstanding common shares of Grasselli as of December 1, 1928.

Accordingly, du Pont Co. issued 149,392 no par value shares of its common capital stock, at a declared value of $63,690,600 and having a market value of $73,202,080, to Grasselli for distribution pro rata to the stockholders of Grasselli. Thereafter, The Grasselli Chemical Company (Ohio) wound up its affairs and dissolved its corporate existence.

History of Investment

None. Du Pont Co. acquired only the assets of the company.

Capitalization at date of purchase

Not applicable.

THE GRASSELLI CHEMICAL COMPANY (OHIO)

Records

Books of account were maintained by The Grasselli Chemical Company in Cleveland, Ohio until the company was dissolved. The company's general ledger and other records are now in General Ledger Division's basement vault.

THE GRASSELLI CHEMICAL COMPANY (DELAWARE)

Significant Dates

Incorporated: November 20, 1928.

Du Pont entry into Company: November 20, 1928.

Du Pont acquired 100%: November 20, 1928.

Years included in Consolidation: December 1928 to October 1936.

Disposition: Dissolved on October 31, 1936 and its business was continued as a Department of du Pont Co.

Principal products and/or nature of business

Manufactured acids, heavy chemicals, spelter, fertilizers, insecticides and spraying products.

Plants

Cleveland, Toledo, Canton, Lockland and Niles, Ohio; Beaver Falls and New Castle; Pa.; Clarksburg, Weirton and Meadowbrook, W. Va.; Birmingham, Dotham and Gadsden, Ala.; East Chicago, Terre Haute and Fortville, Ind.; Grasselli and Paterson, N. J.; Wurtland, Ky.; Hamilton, Ont., Canada.

Last Officers and Directors

Officers		Directors
President:	E. W. Furst	T. S. Grasselli, Chairman
Vice-Pres.:	E. C. Thompson	R. R. M. Carpenter
Treasurer:	O. M. Hook	A. B. Echols
Secretary:	O. M. Hook	E. W. Furst
Comptroller:	T. J. Ross	W. F. Harrington
		Wm. Richter
		E. C. Thompson

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THE GRASSELLI CHEMICAL COMPANY (DELAWARE)

History of Company

Agreement of reorganization dated October 23, 1928 between du Pont Company and The Grasselli Chemical Co. (Ohio) provided that Grasselli (Ohio) transfer all of its assets to du Pont in consideration for which du Pont would assume the liabilities of Grasselli (Ohio), including obligation to redeem its Preferred Stock on December 31, 1928, and deliver no par common shares equal in number to one-fifth of the outstanding common shares of Grasselli (Ohio) as of December 1, 1928. Accordingly, du Pont Co. issued 149,392 no par common shares at a declared capital value of $63,690,600. However, the market value of these shares was $73,202,080 and that value was considered to be the cost of the properties taken over. The transaction was, therefore, recorded as follows:

Capital Stock		
149,392 no par common shares at a declared value of		$63,690,600.00
Paid-in Surplus		
Difference between declared value of above shares and their market value as of December 1, 1928		9,511,480.00
		$73,202,080.00
represented by:		
Net asset value of Grasselli Chemical Co. (Ohio)		
Net worth as at 11/30/28	$38,889,103.70	
Adjustments of securities, etc.	2,467,662.26	41,356,765.96
Goodwill written off to Surplus Account		31,845,314.04
		$73,202,080.00

Transfers were then made to the newly formed Grasselli Chemical Company (Del.) of all the properties, except assets relating to the explosives business, of Grasselli (Ohio) as at December 1, 1928

THE GRASSELLI CHEMICAL COMPANY (DELAWARE)

History of Company (Continued)

together with the properties as at January 1, 1929 that were being operated by the Pigments and Heavy Chemicals Division of the du Pont Co. These transactions were recorded as follows:

Capital Stock - 1,000 common shares	$ 100,000.00
Paid-in Surplus	34,011,134.47
Accounts Payable to du Pont Co.	7,809,483.08
	$41,920,617.55
represented by:	
Net assets transferred from	
The Grasselli Chemical Co. (Ohio)	34,020,113.49
Pigments & Heavy Chemicals Division	7,900,504.06
	$41,920,617.55

The Grasselli Chemical Co. (Del.) held the following 100% owned subsidiaries:

Canadian Pyrites Ltd.	$362,743.55
American Zinc Products Co. of Indiana	246,986.14
Saxton Coal Mining Co.	113,387.87
Peachey Raincoats Ltd. (dissolved 5/19/30)	5,000.00
Maureen Coal Company	500.00

Consistent with the centralization program of the du Pont Company, The Grasselli Chemical Co. (Del.) was dissolved October 31, 1936 and its business was continued as the Grasselli Chemicals Department of the du Pont Co.

THE GRASSELLI CHEMICAL COMPANY (DELAWARE)

History of Investment

Date	Common Shares	Recorded on Books	Remarks
12/31/28	800	$29,059,407.51	To set up capital stock of The Grasselli Chemical Co. (Del.) received by the du Pont Co. in exchange for certain net assets originally owned by The Grasselli Chemical Co. (Ohio).
1/22/29	-	354,703.18	Payment to Canadian Industries Ltd. for certain mining properties in Canada considered as furnishing additional working capital to Grasselli (Del.) and increasing the cost value of their stock.
1/31/29	200	4,875,382.02	To set up capital stock of Grasselli
2/11/29	-	145,296.82	(Del.) received by du Pont Co. in
3/19/29	-	(323,655.06)	exchange for certain net assets of the Pigments & Heavy Chemicals Division.
	1,000	$34,111,134.47	
3/31/29	-	52,919.40	Transfers from the du Pont Co. of cer-
5/20/29	-	(6,439.95)	tain asset and depreciation accounts
11/25/29	-	(34,585.00)	to Grasselli (Del.).
12/31/34	-	1,240,000.00	Expenditures and advances for the construction of additions and renewals to the plant and property of the subsidiary.
8/26/35	-	(7,372,470.00)	Received in the form of a dividend from Grasselli (Del.) 7,000 shares of Krebs Pigment & Color Corp. in order that 100% of the common stock of the latter Co. may be in the hands of the du Pont Co. (Grasselli charged dividend to Paid-in Surplus).
10/31/36	(1,000)	(30,764,041.88	Surrender of stock holdings by du Pont Co. in exchange for the net assets of Grasselli (Del.).
		2,773,482.96	Excess over book value of the investment credited to "Loss or Gain on Securities".
	- 0 -	- 0 -	

THE GRASSELLI CHEMICAL COMPANY (DELAWARE)

Capitalization at Date of Dissolution

	Shares Authorized	Shares Issued	Owned by
Common Stock par value $100	1,000	1,000	Du Pont Company

Records

Books of account were maintained by The Grasselli Chemical Company in Cleveland, Ohio until the Company was dissolved, when accounting records were taken up by the du Pont Company in Wilmington, Delaware. The Company's general ledger and journal entry vouchers are in General Ledger Division's basement vault; other records are at Hall of Records.

TABBED PAGE

EXHIBIT 4

Annual Report

1928

E. I. du Pont de Nemours & Company

WILMINGTON, DELAWARE

EXHIBIT 4

DIRECTORS

P. S. du Pont, *Chairman*

Irénée du Pont, *Vice-Chairman*

W. P. Allen	A. B. Echols
Donaldson Brown	J. D. D. Edge
H. Fletcher Brown	T. S. Grasselli
J. Thompson Brown	W. F. Harrington
R. R. M. Carpenter	H. G. Haskell
W. S. Carpenter, Jr.	J. P. Laffey
Chas. Copeland	C. L. Patterson
Wm. Coyne	F. W. Pickard
J. E. Crane	H. M. Pierce
F. B. Davis, Jr.	J. J. Raskob
A. Felix du Pont	C. L. Reese
Eugene du Pont	A. P. Sloan, Jr.
Eugene E. du Pont	W. C. Spruance
H. F. du Pont	F. G. Tallman
Lammot du Pont	L. A. Yerkes

FINANCE COMMITTEE

Irénée du Pont, *Chairman*

Donaldson Brown	P. S. du Pont
W. S. Carpenter, Jr.	H. G. Haskell
H. F. du Pont	J. J. Raskob
Lammot du Pont	

EXECUTIVE COMMITTEE

Lammot du Pont, *Chairman*

W. P. Allen	Wm. Coyne
H. Fletcher Brown	F. W. Pickard
R. R. M. Carpenter	W. C. Spruance
W. S. Carpenter, Jr.	

Transfer Agent:	*Registrar:*
A. B. Hull	Bankers Trust Co.
Broadway at 57th Street	16 Wall Street
New York City	New York City

ANNUAL REPORT

To the Stockholders of

E. I. du Pont de Nemours & Company

OPERATING REVIEW

Your company's volume of business for the year 1928 was about 11% larger than the previous year, and for the last quarter was about 16% larger than for the same period of 1927. The larger volume, accompanied by greater efficiency in production and distribution, resulted in a substantial increase in earnings.

Du Pont Company Departments:

Sales of commercial explosives were slightly less than for the previous year. Continued unsettled conditions in the coal-mining industry for most of the year retarded sales of explosives somewhat.

Sales of sporting smokeless powders increased substantially over the previous year. Deliveries of military smokeless powders, under contracts entered into during 1927 with the United States Government and with several foreign countries, have been made according to schedule, and in considerable volume.

Sales of paint, varnish, dry colors, pigments, acids and heavy chemicals continued to expand. Sales of Duco have also increased substantially over the previous year and its position as an out-

standing industrial finish has been further strengthened by the development of improved undercoat systems, based on new synthetic products. The wide-spread use of lacquer as a protective coating for linoleum has opened a new market for such products.

All lines of coated fabrics have shown continued progress. Sales of Fabrikoid were substantially larger than in the previous year, mostly as a result of continued efforts in the development of new uses and new and more attractive types of product. Business in rubber-coated fabrics has substantially increased, due largely to development of improved types of these products.

Sales of dyestuffs were satisfactory, as were also sales of other synthetic chemicals, such as rubber vulcanization accelerators and anti-oxidants. The manufacture of Tetra-Ethyl Lead increased substantially to supply the requirements of Ethyl Gasoline Corporation. Sales of seed disinfectants continued to expand, and during the year Bayer-Semesan Company, Inc., was organized jointly by your company and The Winthrop Chemical Company, Inc., to market the seed disinfectants manufactured and previously marketed by their associates and by your company's Dyestuffs Department.

Subsidiary and Affiliated Companies:

Sales of Rayon by Du Pont Rayon Company were larger than for any previous year. The additional capacity at Nashville, construction of which was begun last year, was brought into production during the latter part of the year. Two new plants are under construction in Virginia at Richmond and Waynesboro for the manufacture of Rayon by the viscose and celluiose acetate processes respectively. It is expected that these plants will begin to produce in the summer of 1929. Exclusive rights for North America for the manufacture and sale of Celta, a new type of Rayon, have been acquired from Alsa Société Anonyme of France.

Sales of Cellophane by Du Pont Cellophane Company have continued to increase. The number of purposes for which Cel-

lophane is being used is expanding in a very satisfactory manner. Suitable additions to productive capacity are being made to take care of the increased demand for this product.

Sales of motion picture film by Du Pont Pathé Film Manufacturing Corporation again increased substantially over the previous year. The advent of sound recording on motion picture film promises to increase the consumption of this product.

Sales by Du Pont Viscoloid Company increased over the previous year largely through the development of new lines of business. Rapid progress was made during the year in the production of safety glass, with a resulting increase in consumption of pyroxylin sheeting. Increase in sales was also shown in certain new lines of fabricated articles, although foreign competition continues to affect adversely sales of the standard novelty lines. Sales of sheets, rods and tubes to the various industries using such products have continued at a rate slightly higher than in recent years.

Eastern Alcohol Corporation, in which your company has a half interest, had a successful year, having operated at full capacity for the production of industrial alcohol. Approximately 60% of this production was consumed by your company, the balance being sold to Kentucky Alcohol Corporation. Your company's alcohol requirements have increased rapidly during the past few years and further increase is expected during 1929. Construction of an addition to the plant of Eastern Alcohol Corporation at Deepwater Point, N. J., was completed during the year. This addition has very materially increased the alcohol capacity and will permit also the manufacture of glycerin by the fermentation of molasses.

The manufacture of synthetic ammonia by the fixation of atmospheric nitrogen, by Lazote, Inc., has proceeded successfully throughout the year. A large additional investment has been made in manufacturing facilities at the Belle Plant to supply the increased demands for ammonia.

The manufacture of nitric acid by oxidation of ammonia at several plants of the du Pont Company has progressed very rapidly. Other manufacturers of nitric acid and of chamber sulphuric acid are changing their processes over to ammonia oxidation by the use of the du Pont process, thereby enlarging the uses for ammonia.

The manufacture of synthetic methanol also has proceeded satisfactorily. By the expansion of the Belle Plant the output of methanol will be considerably increased.

Definite progress has been made during the year in simplifying and consolidating the corporate organizations comprising your company's ammonia interests. This was accomplished largely by the acquisition of the minority stockholdings in National Ammonia Company, Inc., the sale by that company of its stockholdings in Canadian Ammonia Company, Limited, and in the several Australian ammonia companies, to Canadian Industries, Limited, and Australian interests, respectively, and the acquisition by National Ammonia Company, Inc., of all the minority stockholdings in its other subsidiary companies.

Good progress has been made by your company's foreign affiliations, which include the following companies, the extent of your company's interest in such companies being shown in the Chart on pages 12 and 13:

Nobel Chemical Finishes, Limited, which manufactures and sells pyroxylin finishes in the British Empire, exclusive of Canada and Newfoundland, and Société Française Duco, conducting similar activities in France and her colonies.

Société Française Fabrikoid, which manufactures and sells pyroxylin and rubber-coated products in France and her colonies. It is expected that production of pyroxylin and rubber-coated goods will be started soon in Australia in the plant of Leathercloth, Limited, (formerly Nobel Chemical Finishes (Australasia), Limited) construction of which is nearly finished.

Canadian Industries, Limited, which manufactures and sells explosives, accessories and sporting ammunition; Duco, paints and varnishes; acids and heavy chemicals; aqua and anhydrous ammonia; salt, and products thereof; Fabrikoid; Pyralin, etc., throughout Canada and Newfoundland. The acids and heavy chemicals, ammonia and salt products businesses were additions during the year to the activities of this company.

Compania Mexicana de Explosivos and Compania Sud Americana de Explosivos, which manufacture and sell high explosives in Mexico and Chile, respectively.

During the year, your company's stockholdings in subsidiary and affiliated companies as shown in Chart on pages 12 and 13 have changed as follows:

Du Pont Viscoloid Company	from 79.44% to 100%
National Ammonia Company, Inc.	from 50.95% to 100%
Lazote, Incorporated	from 57.73% to 89.21%
Canadian Industries, Limited	from 37.90% to 44.14%

The following are additions during the year:

The Grasselli Chemical Company	100% ownership
Bayer-Semesan Company, Inc.	50% ownership
Pittsburgh Safety Glass Company	50% ownership

Employes:

At the end of the year, there were approximately 33,000 employes in your company and its controlled companies. This represents an increase over the previous year of about 7,000 employes, due largely to the consolidation of The Grasselli Chemical Company with the du Pont Company.

Your company's plans providing for group insurance, pensions, stock subscription, bonus awards, etc., have been continued in force during the year with excellent results.

THE GRASSELLI CHEMICAL COMPANY

The importance of your company's position in the chemical industry in this country has been considerably increased and strengthened over the course of the year by the consolidation with your company of the operations and business of The Grasselli Chemical Company, of Cleveland, Ohio.

This company was founded in 1839 by Mr. Eugene Ramiro Grasselli and from that time has enjoyed steady growth and development under the able direction of the founder, who was succeeded by his son, Caesar Augustin Grasselli, and later by his grandson, Thomas S. Grasselli, until, during 1928 the sales approximated $43,000,000.

The activities of the company comprise the manufacture of a wide range of acids and heavy chemicals, lithopone and other pigments, zinc and zinc products and explosives. These products have been manufactured in 23 plants of the company located at strategic points in New Jersey, Pennsylvania, Ohio, West Virginia Illinois, Indiana, Kentucky, Alabama, and Ontario, Canada. The part interest in The Grasselli Dyestuffs Corporation owned by The Grasselli Chemical Company was sold for cash prior to the consolidation and was therefore not acquired by the du Pont Company.

In order to bring about the most effective administration of the properties of the two companies, the explosives plants and business of The Grasselli Powder Company, a subsidiary of the former Grasselli Chemical Company, have been combined with the corresponding department of the du Pont Company; the Canadian plant and business has been transferred to our Canadian associates, Canadian Industries, Limited, and the remaining business, constituting the bulk of the activities of the former Grasselli Chemical Company, will be conducted by the newly formed "The Grasselli Chemical Company." To this new company has been added the acid and heavy chemical business formerly conducted by the du Pont Company together with plants in Pennsylvania and New Jersey. This new company will continue under the

direction of the same able management formerly conducting The Grasselli Chemical Company with Mr. T. S. Grasselli as President. Mr. Grasselli will also serve as a member of the Board of Directors of the du Pont Company. It is fully expected that the association of the activities of The Grasselli Chemical Company with those of the du Pont Company will result in important developments in the manufacture and distribution of the products of these companies and in the advancement of scientific and experimental development of chemical products.

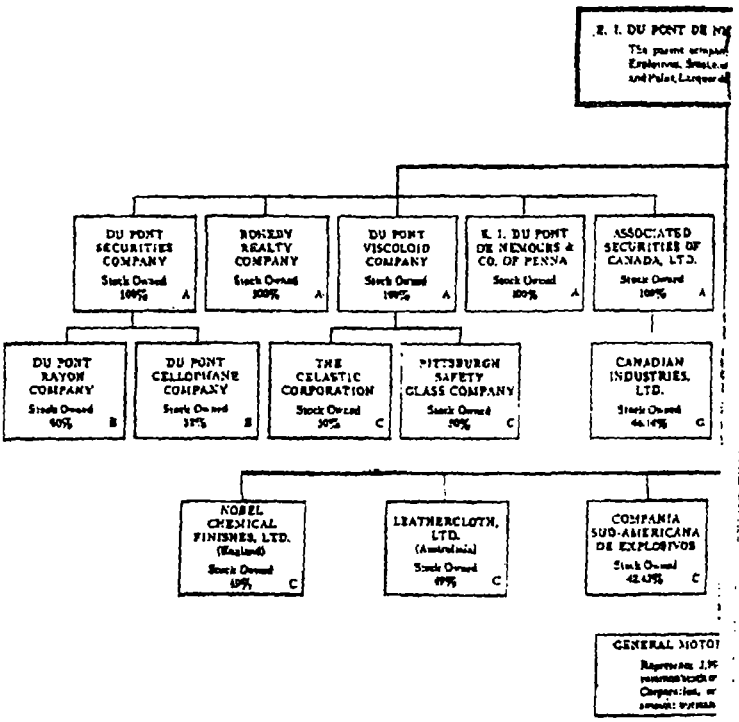
The basis of consolidation of the activities of these two companies involved the receipt by the common stockholders of the former Grasselli Chemical Company of one-fifth of a share of the no par value common stock of the du Pont Company for each share of the common stock of The Grasselli Chemical Company, requiring a total of 149,392 shares of du Pont no par value common stock, and the acquisition by the du Pont Company of all of the properties and business of The Grasselli Chemical Company, subject to the assumption by du Pont Company of all of the liabilities of The Grasselli Chemical Company.

DIVERSIFICATION

Your company's continued development of its operations and expansion thereof into new and related lines of chemical manufacture, as indicated by the foregoing sections of this report, has resulted in a broad diversification of activities, the important effect of which is that peaks and valleys of production and sales are much less pronounced and fluctuations in any one line have little effect on the total volume of business.

The policy of producing in one department the principal materials used in the manufacturing processes of another has been followed for many years and advantage has been taken of many opportunities for the utilization of the company's organization, experience and equipment for the production of other related products.

SUBSIDIARIES & PRINCIPAL STOCKHOLDI

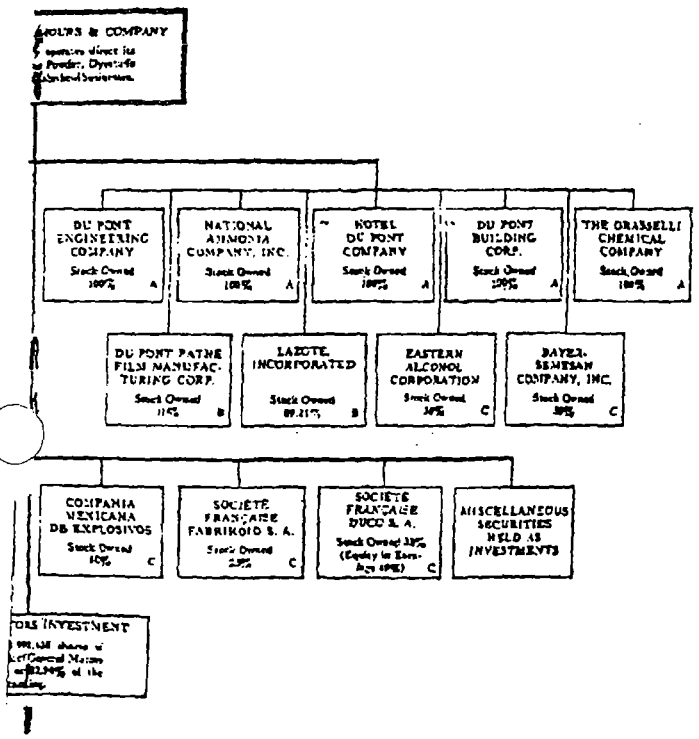


NOTE—Per cent stock ownership as shown relates only to voting common stock, not to equity in earnings.

A—Owns and operates only the Du Pont Building at Wilmington, Delaware.

B—Controls only the Du Pont-Belmont Hotel at Wilmington, Delaware, operated under the direction of the Boreman-Belmont Hotels Corporation.

INGS OF E. I. DU PONT DE NEMOURS & CO.



(A)—Companies included in Consolidated Balance Sheet.

(B)—Controlled companies included in Consolidated Balance Sheet at original cost plus equities accumulated since acquisition.

(C)—Companies carried on Balance Sheet as investments.

The products of your company now enter into the daily life of the nation as the raw materials from which finished articles are manufactured; as the basic implements for the production of other raw materials, or as the finished articles themselves—for example, Rayon is the raw material for many fabrics; explosives are the implements for the mining of metals, coal and building materials; Pyralin and Fabrikoid go directly to the consumer as well as into other industries.

So all along the line the widely diversified products of your company are filling new needs and are linked directly or indirectly with the productive activities of most of the important industries of the country.

CAPITAL STRUCTURE

During the year your company issued $11,552,500 additional par value 6% non-voting debenture stock, of which $10,157,500 par value was offered to the debenture stockholders for subscription by them at $115 per share. The proceeds from this sale were employed to reimburse the treasury of the company for previous capital outlays in connection with the extension of its plants and business and to provide for expansion in the Rayon, synthetic ammonia and other industries. The balance of $1,395,000 par value was issued in payment for the minority common stock interest in Du Pont Viscoloid Company, your company having acquired all of the preferred stock at the organization of that company. The total debenture stock now issued amounts to $92,812,450 of which $1,738,750 is voting and $91,073,700 non-voting. On December 1, 1928, your company issued 149,392 additional shares of its no par value common stock on account of the consolidation of The Grasselli Chemical Company. Thus, at the end of the year 2,811,050 shares of no par value common stock were outstanding.

The stockholders, at a special meeting on December 17, 1928, approved an amendment to the charter which provided for a change in the authorized common stock of the company from

5,000,000 shares without nominal or par value, to 15,000,000 shares of the par value of $20.00 per share and an exchange of the 2,811,050 shares of no par value common stock now outstanding for the new common stock of the par value of $20.00 per share on the basis of three and one-half shares of new common stock for each share of old common stock. Thus, when the exchange, which will begin on January 21, 1929, shall have been completed there will be outstanding 9,838,675 shares of the par value of $20.00 per share, aggregating $196,773,500.

The amendment further provided for the issue to employes of the company from time to time, with payment at such price or prices and on such terms and conditions as the Board of Directors may prescribe, of a total not exceeding 500,000 shares of the balance of said authorized issue of common stock remaining unissued after the exchange. The purpose of this amendment was to permit of more conveniently continuing the traditional policy of your company in having its employes acquire an interest in your company.

INVESTMENT IN GENERAL MOTORS CORPORATION

During the year 1928, your company received $37,929,328 in dividends paid by General Motors Corporation. This amount includes $9,981,220 received on January 3, 1928, as an extra dividend of $2.50 per share paid by General Motors Corporation on its common stock from 1927 earnings. Earnings of General Motors Corporation for the year 1928 had not been made public at the time of the printing of this report. Therefore, figures showing your company's portion of the undivided profits of General Motors Corporation for the year 1928 are not available for presentation in this report.

In December, 1928, General Motors Corporation increased its authorized common stock from 30,000,000 shares of $25.00 par value to 75,000,000 shares of $10.00 par value, and will issue beginning January 7, 1929, two and one-half shares of new $10.00

par value common stock in exchange for each share of $25.00 par value common stock outstanding.

At December 31, 1928, your company owned 70% of the capital stock of General Motors Securities Company, which in turn held 5,625,000 shares of the then outstanding common stock of General Motors Corporation, representing 32.33% of the outstanding common stock of that corporation. From the standpoint of participation in earnings of General Motors Corporation, your company's above-mentioned 70% interest in General Motors Securities Company corresponds to 3,937,500 shares of General Motors Corporation's common stock, which together with your company's direct holdings of 54,988 shares constitute 22.94% of the common stock of General Motors Corporation. These holdings were equal to 1.42 shares of General Motors Corporation common stock for each share of the common stock of your company outstanding at the end of the year. After the completion of the issue of additional shares of common stock of your company and of General Motors Corporation, respectively, in accordance with plans herein described, your company's holdings of General Motors Corporation's common stock will approximate very closely one share of General Motors Corporation's common stock for each share of your company's common stock to be presently outstanding.

FINANCIAL STATEMENTS

The Consolidated Balance Sheet as of December 31, 1928, and Statement of Consolidated Income and Surplus for the year are submitted as certified by Peat, Marwick, Mitchell & Company.

Consolidated Balance Sheet:

The Balance Sheet of your company includes in consolidation the assets and liabilities of all wholly owned companies, a list of which is contained in the Chart on pages 12 and 13. The increase in the working capital and plant accounts over the previous year is largely the result of the consolidation of The Grasselli Chemical Company with your company, and its inclusion in the Con-

solidated Balance Sheet, and also the inclusion in consolidation for the first time of the assets and liabilities of Du Pont Viscoloid Company and National Ammonia Company, Inc., heretofore included in "Securities of Directly Controlled Companies."

The item "Marketable Securities and Call Loans," represents the temporary investment of your company's surplus funds, substantially all of which are in obligations of the United States Government.

Your company's investment in General Motors Corporation is shown on the Balance Sheet as a separate item under "Investments."

Investments in all other companies are included in "Investments" under two headings, viz.: "Securities of Directly Controlled Companies," of which a majority of the common stock is owned by your company, and "Miscellaneous Securities," in which your company owns a minority interest.

Consolidated Income and Surplus Statement:

The Income Account which includes income of The Grasselli Chemical Company for the month of December only, shows Net Income of $64,097,798 equal to 11.9 times the debenture stock dividend for the year. After making provision for the dividends on the debenture stock, the amount remaining of $58,733,238 is equal to $21.96 per share on the average of 2,674,107 shares of common stock outstanding during the year.

The item "Income from Investment in General Motors Corporation" includes $9,981,220, representing your company's portion of extra dividend declared by General Motors Corporation in November, 1927, and paid January 3, 1928. It does not include $9,981,220, representing your company's portion of extra dividend declared by General Motors Corporation in November, 1928, payable January 4, 1929.

The item "Income from Miscellaneous and Marketable Securities, etc." includes approximately $2,286,000, being the profit received from sale of 114,000 shares of United States Steel Corporation common stock, purchased in 1927 as a temporary investment of your company's surplus funds, pending their permanent investment in the business of the company. This item also includes for the first time income received from "Marketable Securities," which income has heretofore been included in the item "Income from Operations, etc." For comparative purposes a corresponding change has been made in the figures published for 1927.

The surplus for this year has been adjusted to include a credit of $19,962,440, resulting from the value of your company's investment in General Motors Corporation common stock having been adjusted on March 31, 1928, from $119,774,640 to a new figure of $139,737,080, which closely corresponded to its net asset value as shown by the Balance Sheet of General Motors Corporation at December 31, 1927. On the basis of 3,992,488 shares of $25.00 par value now owned, this figure represents a valuation of $35.00 per share. Another credit of $1,218,900 is included, representing the net premium from the sale in April, 1928, of 101,575 additional shares of non-voting debenture stock.

The charge to surplus of $22,333,834 represents surplus appropriated in connection with the issue of 149,392 shares of no par value common stock for the Grasselli properties and for additional capital required relative to the issuance of new $20.00 par value stock.

DIVIDENDS

During the year regular dividends at the rate of 6% per annum have been paid on the debenture stock.

Dividends on the common stock, paid in cash, during the year were as follows:

January 4, 1928, extra	$ 3.75	per share
March 15, 1928, regular	2.50	" "
June 15, 1928, regular	2.50	" "
June 15, 1928, extra	.50	" "
July 5, 1928, extra	3.00	" "
September 15, 1928, regular	2.50	" "
December 15, 1928, regular	2.50	" "
Total dividends paid on common stock	$17.25	" "
In addition, there was charged against surplus for the year a portion of an extra dividend payable January 5, 1929, in the amount of	1.20	" "
Total dividends paid and accrued on common stock for the year 1928	$18.45	" "

An extra dividend of $4.75 was declared payable January 5, 1929, to stockholders of record December 1, 1928. Of this extra dividend $1.20 per share is included above in dividends on common stock for the year. The balance, or $3.55 per share represents the amount receivable January 4, 1929, in respect of an extra dividend of $2.50 per share on General Motors Corporation common stock, which is not included in either Income or Dividends for the year 1928.

NUMBER OF STOCKHOLDERS

The number of stockholders, by classes, follows:

	Debenture	Common
December 31, 1924.....	11,278	3,183
December 31, 1925.....	10,724	4,196
December 31, 1926.....	11,545	5,528
December 31, 1927.....	11,426	7,243
December 31, 1928.....	11,278	9,970

The substantial increase in common stockholders during the year includes about 1,400 new stockholders representing those stockholders of The Grasselli Chemical Company who had, at the end of the year, exchanged their Grasselli common stock for du Pont common stock.

Respectfully submitted,

L. DU PONT, *President.*

PEAT, MARWICK, MITCHELL & Co.
40 EXCHANGE PLACE

New York, N. Y., January 26, 1929.

E. I. DU PONT DE NEMOURS & COMPANY,
Wilmington, Delaware.

We have examined the books and accounts of E. I. du Pont de Nemours & Company: its wholly owned subsidiary companies, with the exception of The Grasselli Chemical Company (Delaware), organized December 1, 1928; and its subsidiaries and companies directly controlled but not consolidated, for the year ending December 31st, 1928, and certify that the attached Consolidated Balance Sheet, Income and Surplus Accounts prepared therefrom, including therein the accounts of The Grasselli Chemical Company and its subsidiaries as certified to by Arthur Andersen & Company, in our opinion present the consolidated financial position at December 31st, 1928, and the results of the operations for the year.

PEAT, MARWICK, MITCHELL & Co.

E. I. DU PONT DE NEMOURS & COMPANY

CONSOLIDATED BALANCE SHEET, DECEMBER 31, 1928

ASSETS

Cash	$ 20,936,497.75
Marketable Securities and Call Loans	24,431,133.53
Accounts Receivable	25,207,088.74
Notes Receivable	4,127,056.22
Inventories at Cost	33,627,338.30
Total Current Assets	$108,329,114.54
Investments:	
General Motors Corporation Common Stock—equivalent to 3,992,488 shares carried at $35.00 per share (3,937,500 shares of which are represented by E. I. du Pont de Nemours & Company's 70% interest in General Motors Securities Company)	$139,737,080.00
Securities of Directly Controlled Companies, not consolidated herein, at cost, plus E. I. du Pont de Nemours & Company's equity in Surplus accumulated since acquisition	31,692,116.53
Miscellaneous Securities	24,395,762.06
Plants and Properties	133,101,539.57
Patents, Good Will, etc.	25,082,391.30
Deferred Debit Items	795,119.00
Total Assets	$463,333,203.00

LIABILITIES

Accounts Payable	$ 13,332,285.00
Notes Payable	3,000,000.00
Accrued Interest on Bonds of Subsidiary Companies	10,447.26
Dividend Payable on Debenture Stock	1,392,168.00
Dividend Payable on Common Stock (See Note)	3,370,070.69
Deferred Liabilities and Credit Items	1,180,040.47
Total Current Liabilities	$ 22,285,011.62
Bonds of Subsidiary Companies in hands of Public	$ 1,624,300.00

Capital Stock:

Debenture Stock Outstanding ..... $ 92,811,283.34

	Authorized	Issued	In Treasury
Voting	$ 10,000,000.00	$ 1,738,750.00	$1,166.66
Non-voting	150,000,000.00	91,073,700.00	
	$160,000,000.00	$92,812,450.00	$1,166.66

Common Stock Outstanding $196,773,500.00

Authorized ..... 5,000,000 shares of No Par Value
Issued ..... 2,811,050 shares of no Par Value at average of $70.00 per share

Reserves for Depreciation, Insurance, Pensions, Bad Debts, etc.	$ 44,128,789.24
Surplus	105,710,319.40
Total Liabilities	$463,333,203.60

NOTE: On November 19, 1928, an extra dividend of $4.75 per share was declared on the Post Company's common stock, payable January 5, 1929. Of this extra dividend $1.20 per share, or $3,370,070, appears as a liability in the above statement; the balance, or $3.55 per share amounting to $9,981,220, does not appear as a liability, nor does there appear as an asset $9,981,220, receivable January 4, 1929, in respect of an extra dividend of $3.50 per share on General Motors Corporation common stock.

E. I. DU PONT DE NEMOURS & COMPANY
STATEMENT OF CONSOLIDATED INCOME AND SURPLUS

INCOME ACCOUNT

	1928	1927
Income from Operations, including E. I. du Pont de Nemours & Company's equity in Earnings of Directly Controlled Companies	$22,873,188.50	$15,742,817.70
Income from Investment in General Motors Corporation	37,929,327.95(a)	28,941,597.77(a)
Income from Miscellaneous and Marketable Securities, etc.	5,850,522.07(d)	2,458,281.31
Total Income	$66,653,038.52	$47,142,696.78
Provision for Federal Income Tax	2,470,898.81	1,107,881.08
Net Income before Interest on Funded Debt	$64,182,139.71	$46,034,815.70
Interest on Funded Debt	84,341.88	86,983.34
Net Income	$64,097,797.83	$45,947,832.36
Dividends on Debenture Stock	5,364,559.50	4,833,864.00
Amount Earned on Common Stock	$58,733,238.33	$41,113,968.36
Amount Earned per share on average shares of no par value common stock outstanding during the year (2,674,107 shares for 1928; 2,661,658 shares for 1927)	$21.96	$15.45

SURPLUS ACCOUNT

	1928	1927
Surplus at beginning of year	$ 97,785,243.50	$ 66,417,566.08
Net Income for the year	64,097,797.83	45,947,832.36
Surplus resulting from revaluation of Investment in General Motors Corporation	19,962,440.00(b)	26,184,170.56(b)
Surplus resulting from issue of 101,575 shares additional Non-Voting Debenture Stock	1,218,900.00	———
[illegible] in connection with issue of 149,192 shares of no par value		

outstanding during the year (2,674,107 shares for 1928; 2,661,058 shares for 1927)	$21.96	$15.45

SURPLUS ACCOUNT

	1928	1927
Surplus at beginning of year	$ 97,785,243.50	$ 66,417,566.08
Net Income for the year	64,007,797.83	45,947,832.50
Surplus resulting from revaluation of Investment in General Motors Corporation	19,962,440.00(b)	26,184,370.56(b)
Surplus resulting from issue of 101,575 shares additional Non-Voting Debenture Stock	1,218,900.00	— —
Surplus appropriated in connection with issue of 149,392 shares of no par value common stock for Grasselli properties and for additional capital required relative to the issuance of new $20 par value stock	22,333,834.04	— —
Surplus resulting from revaluation of Canadian Industries, Limited, Common Stock	———	2,528,944.24
Miscellaneous Adjustments applicable to prior years, and Appropriation of Surplus for Contingencies	———	2,528,944.24
Total	$160,730,547.29	$138,549,769.00
Dividends on Debenture Stock	5,364,559.50	4,833,864.00
Dividends on Common Stock — 1st Quarter	16,634,717.50(c)	13,307,545.00(c)
Dividends on Common Stock — 2d Quarter	7,984,725.00(c)	5,323,070.00
Dividends on Common Stock — 3d Quarter	14,638,680.00(c)	9,315,384.50(c)
Dividends on Common Stock — 4th Quarter (See Note)	10,397,545.89(c)	7,984,662.00(c)
Total Dividends	$ 55,020,227.89	$ 40,764,525.50
Surplus at end of year	$105,710,319.40	$ 97,785,243.50

(a) Extra dividends received from the investment in General Motors Corporation, as follows, are included above:

	1928	1927
1st Quarter	$9,981,220	$7,984,976
3d Quarter	7,984,976	3,992,488

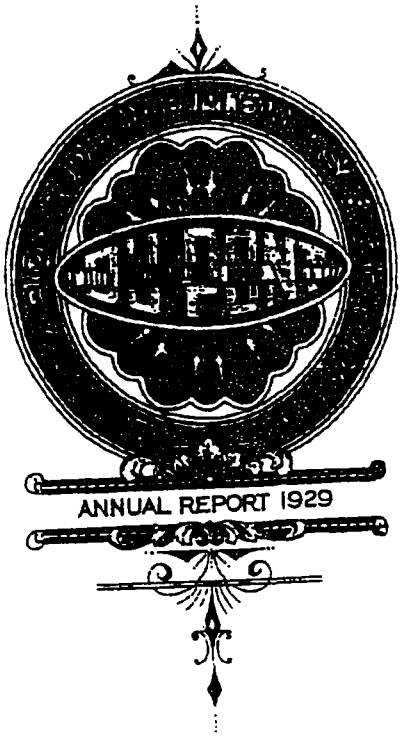
(b) The value at du Pont Company's investment in General Motors Corporation common stock was estimated on the basis of the company in March, 1927, to $119,774,640, and in March, 1928, to $139,737,080, which closely corresponded to its net asset value as shown by the balance sheets of the General Motors Corporation at December 31, 1926, and December 31, 1927, respectively. On the basis of the 3,992,488 shares of $25.00 par value now owned, the present figure represents a valuation of $35.00 per share compared to the previous valuation of $30.00 per share.

(c) The following extra dividends paid on the common stock are included above:

	1928	1927
1st Quarter	$ 9,981,220	$ 7,984,976
2d Quarter	1,330,829	— —
3d Quarter	7,984,976	3,992,488
4th Quarter (See Note)	3,370,871	1,330,829
	$22,667,896	$13,308,293

(d) Includes approximately $3,384,000, representing profit received from sale of 114,000 shares of United States Steel Corporation common stock.

NOTE: On November 19, 1928, an extra dividend of $1.75 per share was declared on du Pont Company's common stock payable January 5, 1929. Of this extra dividend, $1.10 per share or $3,370,871 is included in dividends on common stock for the year 1928; the balance or $2.35 per share amounting to $9,981,720 is not included in Dividends, nor does Income for the year 1928 include $9,981,220, receivable January 4, 1929, in respect of an extra dividend of $7.50 per share on General Motors Corporation common stock.



TABBED PAGE

EXHIBIT 5

Annual Report

1929

E. I. du Pont de Nemours & Company

WILMINGTON, DELAWARE

EXHIBIT 5

DIRECTORS

P. S. du Pont, *Chairman*
Irénée du Pont, *Vice-Chairman*

W. P. Allen
Donaldson Brown
H. Fletcher Brown
J. Thompson Brown
R. R. M. Carpenter
W. S. Carpenter, Jr.
Chas. Copeland
Wm. Coyne
J. E. Crane
F. B. Davis, Jr.
A. Felix du Pont
Eugene du Pont
Eugene E. du Pont
H. F. du Pont
L. du Pont
A. B. Echols
J. B. D. Edge
Edmond Gillet
T. S. Grasselli
W. F. Harrington
H. G. Haskell
J. P. Laffey
C. L. Patterson
F. W. Pickard
H. M. Pierce
J. J. Raskob
C. L. Reese
A. P. Sloan, Jr.
W. C. Spruance
F. G. Tallman
L. A. Yerkes

FINANCE COMMITTEE

Irénée du Pont, *Chairman*

Donaldson Brown
W. S. Carpenter, Jr.
H. F. du Pont
L. du Pont
P. S. du Pont
A. B. Echols
H. G. Haskell
J. J. Raskob

EXECUTIVE COMMITTEE

L. du Pont, *Chairman*

H. Fletcher Brown
J. Thompson Brown
R. R. M. Carpenter
W. S. Carpenter, Jr.
Wm. Coyne
J. E. Crane
W. F. Harrington
F. W. Pickard
W. C. Spruance

Transfer Agent:
A. B. Hull
Broadway at 57th Street
New York City

Registrar:
Bankers Trust Co.
16 Wall Street
New York City

ANNUAL REPORT

To the Stockholders of

E. I. du Pont de Nemours & Company

OPERATING REVIEW

Your company's volume of business for the year 1929 was about 13% larger than for the previous year after adjusting the 1928 volume of sales to include, for comparative purposes, the business of The Grasselli Chemical Company which was consolidated with your company in December, 1928. The larger volume of business, the inclusion of the earnings of the above mentioned company, and the increased equity acquired in the earnings of those subsidiary companies referred to on page 9, resulted in a material increase in "Income from Operations."

Du Pont Company Departments:

Sales of commercial explosives were higher than for the previous year. Progress in this branch, during the year, included the development and introduction of new types of explosives and improved blasting accessories.

Sales of sporting smokeless powders were less than for the previous year. Sales of military smokeless powders were also at a reduced volume, as deliveries under contracts previously entered into were completed early in the year.

Sales of paint and varnish increased substantially, as did sales of Duco, which maintained its position as an outstanding industrial finish.

Sales of pyroxylin-coated (Fabrikoid and Tontine) and rubber-coated fabrics were nearly equal to preceding year's volume

which was substantially higher than for any previous year. Development of new uses and introduction of new and more attractive types continue.

Sales of dyestuffs and other synthetic chemicals, such as rubber vulcanization accelerators and anti-oxidants, increased satisfactorily. The manufacture of Tetra-Ethyl Lead was again increased substantially to supply the demand. The manufacture of seed disinfectants continued to expand in line with the sales of Bayer-Semesan Company, Inc., which markets these products.

Subsidiary and Affiliated Companies:

Sales by The Grasselli Chemical Company increased satisfactorily over the previous year. This company manufactures and sells a wide range of acids and heavy chemicals, dry colors, lithopone and other pigments, zinc and zinc products. The results which were anticipated by the consolidation of the activities of The Grasselli Chemical Company with those of du Pont Company have been fully up to expectations.

In June of this year, your company acquired all of the properties and business of Krebs Pigment & Chemical Company of Newport, Delaware, manufacturers of lithopone, an important pigment in the paint and floor covering industries. A new subsidiary company was formed to continue this business under the same name, management and general policies as formerly, and sales have been in satisfactory volume.

Sales of rayon by Du Pont Rayon Company increased over the previous year. Two new plants in Virginia, at Richmond and Waynesboro, for the manufacture of rayon by the viscose and cellulose acetate processes respectively, were completed and put into operation during the year. Rayon manufactured by the cellulose acetate process is being marketed under the trade name of "Acele."

Sales of cellophane by Du Pont Cellophane Company, Inc., increased satisfactorily. New uses for this product are constantly

being found. An additional plant at Old Hickory, Tennessee, was completed and put into operation during the year.

Sales by Du Pont Viscoloid Company were approximately the same as for the previous year. Sales of sheets, rods and tubes increased slightly, while sales of fabricated articles and standard novelty lines were slightly less than for the previous year. Satisfactory progress was made in the production of safety glass by Duplate Corporation, in which your company has a half interest.

Acquisition during the year of the entire minority interest in Lazote, Incorporated, enabled your company to complete its program of simplifying and consolidating the corporate organizations comprising its ammonia interests, under the name of "Du Pont Ammonia Corporation."

Sales in tank cars to large consumers of synthetic ammonia and methanol, manufactured by Du Pont Ammonia Corporation, increased substantially over the previous year. Sales of ammonia in cylinders and drums by National Ammonia Company, Inc., were satisfactory.

Your company's consumption of ammonia in the manufacture of nitric acid by oxidation of ammonia has increased in volume. Additional licenses have been granted other manufacturers of nitric acid and of chamber sulphuric acid, both in this country and abroad, for use of the du Pont process for oxidation of ammonia.

During the year the synthetic ammonia and alcohol plant at Belle, West Virginia, was greatly enlarged. Extensive construction work is still in progress, so that this plant is becoming one of this country's large and important sources of fixed nitrogen.

Sales of nitroglycerin by American Glycerin Company increased satisfactorily over the previous year. This company is engaged in the torpedoing or shooting of oil and gas wells.

Sales of motion picture film by Du Pont-Pathé Film Manufacturing Corporation continued to increase. The rapid progress

made in the art of sound recording on motion picture film has substantially increased the consumption of this product.

Eastern Alcohol Corporation operated at a substantially increased rate producing industrial alcohol from molasses. Approximately 60% of this production was consumed by your company; this represents a material increase in its alcohol consumption over the previous year.

Your company's foreign affiliations have shown satisfactory progress. This group includes the following companies, the extent of your company's interest in the more important of such companies being shown in the chart on pages 12 and 13:

Nobel Chemical Finishes, Limited, manufacturing and selling pyroxylin and paint and varnish finishes in the British Empire, exclusive of Canada and Newfoundland.

Société Française Duco, manufacturing and selling pyroxylin finishes in France and her colonies.

Société Française Fabrikoid, manufacturing and selling pyroxylin-coated products in France and her colonies.

Leathercloth Proprietary, Ltd., manufacturing and selling pyroxylin-coated and rubber-coated fabrics in Australia and New Zealand.

Canadian Industries Limited, manufacturing and selling explosives, accessories and sporting ammunition; Duco, paints and varnishes; acids and heavy chemicals; aqua and anhydrous ammonia; salt and products thereof; Fabrikoid; Pyralin, etc. The results this company attained from its acids and heavy chemicals, ammonia and salt products businesses entered into during the previous year fully justified expectations.

Compania Mexicana de Explosivos and Compania Sud-Americana de Explosivos, manufacturing and selling high explosives in Mexico and Chile, respectively.

During the year, your company joined in the formation of two new German companies to undertake the manufacture and sale

in Germany of Ventube and of your company's line of pyroxylin finishes, including Duco. Ventube is a rubber-coated fabric tubing used for mine ventilation and in tunnel construction work.

During the year, your company's stockholdings in subsidiary and affiliated companies as shown in chart on pages 12 and 13 have changed as follows:

Du Pont Rayon Company.....	from 60%	to 100%
Du Pont Cellophane Company, Inc....	from 52%	to 100%
Du Pont Ammonia Corporation (formerly Lazote, Incorporated).....	from 89.21%	to 100%
Canadian Industries Limited.....	from 44.14%	to 46%

The following was added during the year:

Krebs Pigment & Chemical Company.....100% ownership

Employes:

At the end of the year, there were approximately 35,000 employes in your company and its controlled companies. This represents an increase over the previous year of about 2,000 employes.

Your company's plans providing for group insurance, pensions stock subscription, bonus awards, etc., have been continued in force during the year with gratifying results. Beginning January 1, 1930, the plans will be further extended in their scope by the addition of a cooperative plan by which employes of the company in the United States, having six months' service on the effective date, may obtain insurance providing payment for time lost due to sickness and non-occupational accidents.

A recently completed actuarial calculation has made available figures showing the estimated contingent liability in respect of the pension plans of du Pont Company and 100% subsidiaries. In order to place the Pension Reserve in balance with the estimated accrued contingent liability, the sum of $3,807,968 has

been appropriated from surplus and applied to the credit of the Pension Reserve, which as of December 31, 1929, amounted in total to $14,064,000. Necessity for this adjustment was due largely to the consolidation with your company of The Grasselli Chemical Company and Krebs Pigment & Chemical Company and the inclusion of their employes in the plans, together with the inclusion of employes of certain other subsidiaries now fully owned. The reserve will continue to be sustained and augmented by appropriate charges to current operating and expense accounts.

INVESTMENT IN GENERAL MOTORS CORPORATION

During the year 1929 your company received $42,939,452 in dividends paid by General Motors Corporation. This amount includes $9,981,220 received on January 4, 1929, as an extra dividend of $2.50 a share paid by General Motors Corporation on its $25.00 par value common stock from 1928 earnings. Earnings of General Motors Corporation for the year 1929 have not yet been made public. Figures showing your company's portion of the undivided profits of General Motors Corporation for the year 1929 are therefore not available for presentation in this report.

On January 7, 1929, General Motors Corporation issued two and one-half shares of new $10.00 par value common stock in exchange for each share of $25.00 par value common stock outstanding.

On December 31, 1929, your company owned 70% of the capital stock of General Motors Securities Company, which in turn held 14,062,500 shares of the common stock of General Motors Corporation, representing 32.33% of the outstanding common stock of that corporation. From the standpoint of participation in earnings of General Motors Corporation, your company's above mentioned 70% interest in General Motors Securities Company corresponds to 9,843,750 shares of General Motors Corporation common stock, which, together with your company's direct holdings of 137,470 shares, constitute 22.94%

of the common stock of General Motors Corporation. These holdings were equal to approximately 96/100ths of a share of General Motors Corporation common stock for each share of the common stock of your company outstanding at the end of the year.

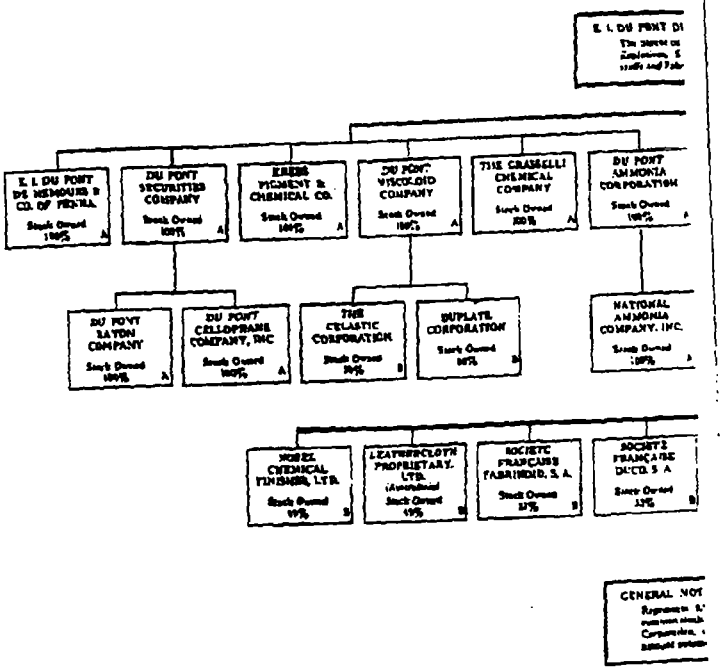
CAPITAL STRUCTURE

As mentioned in report for 1928, the stockholders, at a special meeting on December 17, 1928, approved an amendment to the charter which provided for a change in the authorized common stock of the company from 5,000,000 shares without nominal or par value to 15,000,000 shares of the par value of $20.00 a share, and an exchange of the 2,811,050 shares of no par value common stock then outstanding for the new common stock of the par value of $20.00 a share, on the basis of three and one-half shares of new common stock for each share of old. Upon completion of this exchange, which was begun on January 21, 1929, there were 9,838,675 shares outstanding of the par value of $20.00 a share, aggregating $196,773,500.

Through the issuance during the year of a total of 500,567 additional shares of $20.00 par value common stock and $6,720,700 additional par value 6% non-voting debenture stock, your company acquired the entire minority interests in Du Pont Rayon Company, Du Pont Cellophane Company, Inc., and Du Pont Ammonia Corporation (majority interests in these companies having been already owned by your company); acquired all of the properties and business of Krebs Pigment & Chemical Company and increased its interest in Canadian Industries Limited. Thus at the end of the year total debenture stock issued amounts to $99,533,150, of which $1,738,750 is voting and $97,794,400 non-voting, and common stock issued amounts to 10,339,242 shares of the par value of $20.00 a share, aggregating $206,784,840.

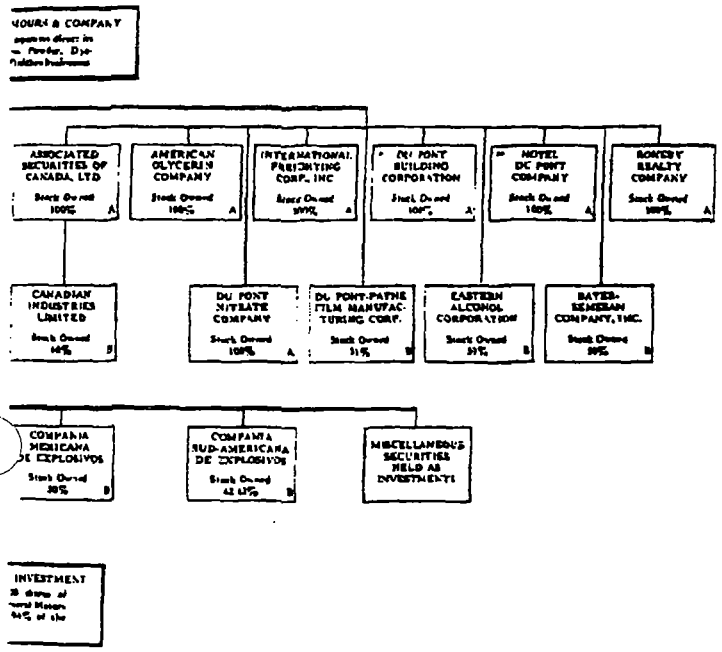
The amendment to the charter, referred to above, included a provision for the issue to employes of the company from time to time, with payment at such price or prices and on such terms

SUBSIDIARIES & PRINCIPAL STOCKHOLD



NOTE:—

;GS OF E. I. DU PONT DE NEMOURS & CO.



(A)—Companies included in Consolidated Balance Sheet.
(B)—Companies carried on Balance Sheet as investments.

and conditions as the Board of Directors may prescribe, of a total not exceeding 500,000 shares of the authorized but unissued common stock. Accordingly, the Board of Directors, under the above mentioned provision, have authorized the issue of not to exceed 143,239 shares of common stock to be offered for subscription at $80.00 a share to such employes as are eligible under the Executives Trust Fund and to those who are awarded bonuses under the "B" Bonus Plan.

FINANCIAL STATEMENTS

The Consolidated Balance Sheet as of December 31, 1929, and Statement of Consolidated Income and Surplus for the year are submitted as certified by Peat, Marwick, Mitchell & Company.

As a result of the acquisitions mentioned under "Capital Structure," the statements hereto appended present more completely the consolidation of your company's interests.

Consolidated Balance Sheet:

The Balance Sheet of your company includes in consolidation the assets and liabilities of all wholly owned companies, a list of which is contained in the chart on pages 12 and 13. The increase in working capital and plants and properties over the previous year is largely the result of consolidation of previously mentioned companies with your company and inclusion of their assets and liabilities in the Consolidated Balance Sheet. This also explains the elimination of the item which heretofore appeared as "Securities of Directly Controlled Companies not consolidated herein, at cost, plus E. I. du Pont de Nemours & Company's equity in Surplus accumulated since acquisition" which included your company's investment in Du Pont Rayon Company, Du Pont Cellophane Company, Inc., and Du Pont Ammonia Corporation.

The item "Marketable Securities and Call Loans" represents the temporary investment of your company's surplus funds, a substantial part of which are in obligations of the United States Government.

Your company's investment in General Motors Corporation is shown on the Balance Sheet as a separate item under "Investments."

Investments in all other companies, in which your company owns a minority interest, are included under the item "Miscellaneous Securities."

Statement of Consolidated Income and Surplus:

The Income Account shows Net Income of $78,171,730, equal to 13.3 times the debenture stock dividend for the year. After making provision for the dividends on the debenture stock, the amount remaining, $72,300,627, is equal to $7.09 a share on the average number of 10,196,777 shares of common stock outstanding during the year.

The item heretofore shown as "Income from Operations, including E. I. du Pont de Nemours & Company's equity in Earnings of Directly Controlled Companies" has been replaced by "Income from Operations," which includes in full consolidation the earnings of all wholly owned companies. Income received from companies not wholly owned is included in "Income from Miscellaneous and Marketable Securities, etc."

The item "Income from Investment in General Motors Corporation" includes $9,981,220, representing your company's portion of extra dividend declared by General Motors Corporation in November, 1928, and paid January 4, 1929. It does not include $2,993,600, representing your company's portion of extra dividend declared by General Motors Corporation in November, 1929, payable January 3, 1930.

Increase in the amount of the item "Provision for Federal Taxes" is due to the effect of full consolidation of the income and expenses of certain subsidiary companies, not heretofore in full consolidation, and to an increase in the earnings of the several industrial departments of your company.

The surplus account contains the following adjustments:

A credit of $24,953,050 resulting from adjustment of the value of your company's investment in General Motors

Corporation common stock on March 31, 1929, from $139,737,080 to a new figure of $164,690,130, which closely corresponded to its net asset value as shown by the Balance Sheet of General Motors Corporation at December 31, 1928. On the basis of 9,981,220 shares of $10.00 par value owned, this figure represents a valuation of $16.50 a share.

A credit of $5,927,403 under the item "Surplus resulting from acquisition of Minority Interests in Du Pont Rayon Company, Du Pont Cellophane Company, Inc., and Du Pont Ammonia Corporation; entire interest in Krebs Pigment & Chemical Company, and additional interest in Canadian Industries Limited; etc.," which represents the excess of values of the respective interests acquired over the par value of securities issued by your company in exchange therefor, and adjustments resulting from full consolidation of all excepting last of above mentioned companies; and a minor adjustment connected with acquisition last year of The Grasselli Chemical Company.

A debit of $3,807,968 is included under the item "Appropriation of Surplus for Pension Reserve," mentioned on page 9.

DIVIDENDS

During the year regular dividends at the rate of 6% per annum have been paid on the debenture stock.

Dividends on the common stock, paid in cash, and the portion charged against surplus for the year are as follows:

			Dividends Actually Paid in Cash	Portion Charged Against Surplus for the Year
January	4, 1929	Extra (Note)	$1.35	$1.01
March	15, 1929	Regular . .	1.00	1.00
June	15, 1929	Regular . .	1.00	1.00
July	3, 1929	Extra	.50	.50
September	14, 1929	Regular . .	1.00	1.00
December	14, 1929	Regular . .	1.00	1.00
			$5.85	$5.51
In addition, there was charged against surplus for the year a portion of an extra dividend payable January 4, 1930, in the amount of			. . . .	.41
Total			$5.85	$5.92

NOTE: Equal to $4.73 a share on no par value stock then outstanding. Of this extra dividend $1.20 a share was charged against surplus of preceding year.

An extra dividend of $0.70 a share was declared payable January 4, 1930, to stockholders of record November 27, 1929. Of this extra dividend $0.41 a share has been charged against surplus for the year 1929. The balance, or $0.29 a share, represents the amount receivable January 3, 1930, in respect of an extra dividend of $0.30 a share on General Motors Corporation common stock, which is not included in either Income or Dividends for the year 1929.

NUMBER OF STOCKHOLDERS

The number of stockholders, by classes, follows:

	Debenture	Common
December 31, 1925	10,724	4,196
December 31, 1926	11,545	5,528
December 31, 1927	11,426	7,243
December 31, 1928	11,278	9,970
December 31, 1929	10,768	25,470

During the year, the number of common stockholders increased by 15,500, or 155% over the number at the end of the previous year. It is of especial interest that during the last two months of the year there was an increase of approximately 5,350 in the number of common stockholders.

An amendment to the Insurance Laws of the State of New York was adopted in 1928, which permits domestic life insurance companies of that state to invest in preferred stock of corporations which meet certain requirements as to earnings on capital stock. As a result of your company's debenture stock being in the eligible class, a number of insurance companies have become substantial holders of the debenture stock. It is also of interest that approximately 41% of the stockholders of both classes are women, who own approximately 13% of the common stock and 23% of the debenture stock.

Respectfully submitted,

L. DU PONT, *President.*

PEAT, MARWICK, MITCHELL & Co.
40 EXCHANGE PLACE

New York, N. Y., January 24, 1930.

E. I. DU PONT DE NEMOURS & COMPANY,
Wilmington, Delaware.

We have examined the books and accounts of E. I. du Pont de Nemours & Company, its wholly owned subsidiary companies, and companies directly controlled but not consolidated, for the year ended December 31, 1929, and certify that the attached Consolidated Balance Sheet, Income and Surplus Accounts have been prepared therefrom and, in our opinion, present the consolidated financial position at December 31, 1929, and the results of the operations for the year.

PEAT, MARWICK, MITCHELL & Co.

E. I. DU PONT DE NEMOURS & COMPANY
CONSOLIDATED BALANCE SHEET, DECEMBER 31, 1929

ASSETS

Cash	$ 20,977,697.55
Marketable Securities and Call Loans	15,627,109.48
Accounts Receivable	23,834,249.61
Notes Receivable	3,245,918.06
Inventories at Cost	43,311,071.85
Total Current Assets	$106,996,046.55
Investments:	
General Motors Corporation common stock—equivalent to 9,981,220 shares carried at $16.50 a share (9,843,750 shares of which are represented by E. I. du Pont de Nemours & Company's 70% interest in General Motors Securities Company)	$164,690,130.00
Miscellaneous Securities	26,519,966.87
Plants and Properties	214,936,556.85
Patents, Good Will, etc.	27,965,702.81
Deferred Debit Items	878,311.32
Total Assets	$541,986,714.40

LIABILITIES

Accounts Payable	$ 12,758,883.72
Notes Payable	3,050,000.00
Dividends Payable on Debenture Stock	1,492,978.50
Dividends Payable on Common Stock (See Note)	4,232,014.98
Deferred Liabilities and Credit Items	864,489.36
Total Current Liabilities	$ 22,398,366.56
Bonds of Subsidiary Companies in hands of Public	$ 1,457,000.00

Capital Stock:

Debenture Stock Outstanding				$ 99,531,983.34
	Authorized	Issued	In Treasury	
Voting	$ 10,000,000.00	$ 1,738,750.00	$1,166.66	
Non-Voting	150,000,000.00	97,794,400.00	—	
	$160,000,000.00	$99,533,150.00	$1,166.66	
Common Stock Outstanding				$206,784,840.00
Authorized	15,000,000 shares $20.00 Par Value			
Issued	10,339,242 shares $20.00 Par Value			

Reserve for Depreciation and Obsolescence	$ 44,602,856.72
Reserves for Insurance, Bad Debts and Contingencies, including obligation to Trustee under Pension Plan	22,291,452.58
Surplus	144,920,215.20
Total Liabilities	$341,986,714.60

NOTE: On November 18, 1929, an extra dividend of $0.70 a share, amounting to $7,235,415, was declared on the Fisher Body Company's $20.00 par value common stock, payable January 4, 1930. Of this extra dividend, $4,232,015 appears as a liability in the above statement; the balance, or $2,993,400, does not appear as a liability, nor does there appear as an asset $2,993,400, receivable January 3, 1930, in respect of an extra dividend on General Motors Corporation common stock.

E. I. DU PONT DE NEMOURS & COMPANY
STATEMENT OF CONSOLIDATED INCOME AND SURPLUS

INCOME ACCOUNT

	1929	1928
Income from Operations	$34,212,150.47	$22,464,102.92
Income from Investment in General Motors Corporation	42,939,452.41(a)	37,929,527.95(a)
Income from Miscellaneous and Marketable Securities, etc.	4,848,179.13	6,259,607.65(b)
Total Income	$81,999,782.01	$66,653,038.52
Provision for Federal Income Tax	3,749,358.89	2,470,898.81
Net Income before Interest on Bonds	$78,250,423.12	$64,182,139.71
Interest on Bonds of Subsidiary Companies	78,692.82	84,341.88
Net Income	$78,171,730.30	$64,097,797.83
Dividends on Debenture Stock	5,871,103.50	5,364,559.50
Amount earned on Common Stock	$72,300,626.80	$58,733,238.33
Average number of shares of $20.00 par value common stock outstanding during the year	10,196,777	9,359,374
Amount earned a share	$7.09	$6.27

SURPLUS ACCOUNT

	1929	1928
Surplus at beginning of year	$185,710,319.60	$97,785,245.80
Net Income for the year	78,171,730.30	64,097,797.83
Surplus resulting from revaluation of Investment in General Motors Corporation	24,953,050.00(c)	19,962,440.00(c)
Surplus resulting from acquisition of Minority Interests in Du Pont Rayon Company, Du Pont Cellophane Company, Inc., and Du Pont Ammonia Corporation; entire interest in Krebs Pigment & Chemical Company; and additional interest in Canadian Industries Limited; etc.	5,927,402.61	———
Appropriation of Surplus for Pension Reserve	3,807,867.92	———
Surplus resulting from issue of 101,575 shares additional Non-Voting Debenture Stock	———	1,218,900.00
Surplus appropriated in connection with issue of 149,391 shares of no par value common stock for Grasselli properties and for additional capital required relative to the issuance of new $20.00 par value stock	———	22,333,834.04
Total	$210,954,534.39	$160,730,547.29
Dividends on Debenture Stock	5,871,103.50	5,364,559.50
Dividends on Common Stock — 1st Quarter	19,819,671.71(d)	14,634,717.50(d)
Dividends on Common Stock — 2d Quarter	12,473,380.00(d)	7,984,725.00(d)
Dividends on Common Stock — 3d Quarter	13,315,842.00(d)	14,638,680.00(d)
Dividends on Common Stock — 4th Quarter	14,554,321.98(d)	10,397,545.89(d)
Total Dividends	$ 66,034,319.19	$ 55,020,227.89
Surplus at end of year	$144,920,215.20	$105,710,319.40

(a) Extra dividends received from the Investment in General Motors Corporation, as follows, are included above:

	1929	1928
1st Quarter	$9,961,320	$9,961,320
3d Quarter	2,993,680	7,984,976

(b) Includes approximately $3,184,000, representing profit received from sale of 114,000 shares of United States Steel Corporation common stock.

(c) The value of du Pont Company's investment in General Motors Corporation common stock was adjusted on the books of the company in March, 1928, to $130,737,000, and in March, 1929, to $144,690,120, which closely corresponded to its net asset value as shown by the balance sheets of the General Motors Corporation at December 31, 1927, and December 31, 1928, respectively. The 9,961,320 shares of $10.00 par value now owned are valued at $14.52 a share, the previous valuation having been $14.00 a share.

(d) The following extra dividends paid on the common stock are included above:

	1929	1928
1st Quarter	$ 9,961,320	$ 9,961,320
2d Quarter	2,161,680	1,328,520
3d Quarter	2,993,680	7,984,976
4th Quarter	4,332,015	3,320,871
(See Note)	($19,448,695)	($22,595,687)

NOTE: On November 15, 1929, an extra dividend of $0.70 a share, amounting to $7,325,615, was declared on du Pont Company's $20.00 par value common stock, payable January 4, 1930. Of this extra dividend, $4,332,015 is included in dividends on common stock for the year 1929; the balance, or $2,993,600, receivable January 3, 1930, in respect of an extra dividend on General Motors Corporation common stock, is not included herein.

TABBED PAGE

EXHIBIT 6

DUPONT

Better Things for Better Living . . . through Chemistry

E. I. du Pont de Nemours & Company

INCORPORATED

Grasselli Chemicals Department

Manufacturing Division

Plants Technical Section

Wilmington, Delaware

EXHIBIT 6

DPZ0316652

E. I. DU PONT DE NEMOURS AND COMPANY
GRASSELLI CHEMICALS DEPARTMENT

WHY THIS BOOKLET?

We, in the Grasselli Department, would like very much to become better acquainted with you--the Graduate Engineer. We think you probably feel much the same toward us. In order for you to know more about us, we have compiled some information concerning the Grasselli Department in the form of this booklet. This booklet is yours to keep.

In the following pages you will find something about our history, our plants, and our many and varied products. Primarily, however, we have tried to show some of the great variety of interesting, challenging, and rewarding opportunities available to you--the Graduate Engineer.

The accomplishments of the Grasselli Chemicals Department in the production and marketing of chemicals reflect the cooperation, industry, integrity, and character of many people. It would be a pleasure to have you meet and talk with a larger number of these people than will be possible in the limited time you will visit with us. However, we trust that during your stay we will have given you a true, though greatly condensed, view of the Grasselli Department, its personnel, and its many varied industrial activities.

OUR MANUFACTURING PLANTS

The Grasselli Chemicals Department operates eleven plants located in the eastern half of the nation. Technical organizations are maintained at each of our four major plants. These larger plants are situated adjacent to the large metropolitan centers of Cleveland, Chicago, New York, and Houston.

Plant locations are:

*Cleveland, Ohio

*East Chicago, Indiana

*Grasselli, New Jersey

*Houston, Texas

Ecorse, Michigan

Fort Hill, Ohio

Fortville, Indiana

James River, Virginia

Philadelphia, Pennsylvania

Toledo, Ohio

Wurtland, Kentucky

*Maintain Technical Organizations

The Department's research activities are conducted at the Experimental Station at Wilmington, Delaware and at the newly constructed Stine Laboratory in Newark, Delaware.

OUR PRODUCTS

Grasselli has long been noted as a major producer of inorganic industrial and agricultural chemicals. During the past ten years, our research has carried us into the organic field, with particular emphasis on agricultural and insecticidal products, biological chemicals for the animal industry, organic intermediates, and organo-silica compounds. Research activities in the biological field are centered in the newly constructed Stine Laboratory at Newark, Delaware. Some of our more important products are listed below:

Inorganic Chemicals

Sulfuric Acid

This important, basic chemical is produced at eight locations. Our Fort Hill, Ohio Plant went on stream in October, 1956, replacing the last chamber acid unit in the department. Our East Chicago installation is believed to be the largest acid producing unit in the world.

Silicates

Silica chemistry is a major interest of the Department. Our most important silica products are:

Sodium Silicate - produced at four locations.

Potassium Silicate - finding rapidly expanding use in the television industry.

"Ludox" Colloidal Silica - a recent product of Grasselli research, is finding many applications in the wax, textile, foam rubber, and paper industries.

"Valron" Estersil - this surface-esterified silica, which is still in the development stage, has very unusual and interesting properties.

In addition to the above, the Grasselli Chemicals Department is one of the leading producers of the following list of products:

Sulfamic Acid and its derivatives

Strontium Nitrate

"Quilon" - "Volan", chrome complexes

Chlorosulfonic Acid

Aluminum Salts

Zinc Salts

Sodium Sulfate

Sodium Thiosulfate

Sodium Bisulfate

C. P. Acids

Organic Chemicals

In the past ten years the Grasselli Department has expanded into the field of organic chemicals. These products are integrated with our industrial and agricultural fields.

We are the nation's leading producers of:

Methylamines

Dimethyl Formamide

Anisole

Formic Acid

Edible Lactic Acid

Agricultural Chemicals

Grasselli is a major producer of important agricultural products. Some of the more recent ones stemming from our research are as follows:

Fungicides - Dithiocarbamates such as "Fermate", "Parzate", "Manzate", "Zerlate"

Herbicides - "Karmex" -3(p-chlorophenyl) 1, 1, dimethylurea

"Ammate" - Ammonium Sulfamate

Insecticides - "Marlate" - Methoxychlor insecticide

Seed Disinfectants - "Arasan" - Tetramethyl thiuram disulfide.

Animal Industry, Nutrition and Medicine

This is a relatively new endeavor for the Grasselli Chemicals Department. Our interest in this field is evident from the new $3,000,000 Stine Laboratory erected at Newark, Delaware for research in this comparatively new field.

Grasselli products in this field are:

Phenothiazine

"Delsterol" Vitamin D_3

DL Methionine

"Cylan" Calcium Cyclamate

OPPORTUNITIES FOR ENGINEERS

Do you remember how you felt during your freshman year in engineering? For most of us it was quite a problem deciding which specific engineering curriculum to choose after a fairly generalized freshman year.

In many ways your first job in industry is similar to your freshman year in college. While you may have some fairly definite ideas on the type of career you want to pursue in the chemical field, it is quite likely that you are more than a little "hazy" about just where your ultimate interests will lie.

If this is the way you feel, your best choice is to take a position which offers possibilities of advancement in several fields and gives you an insight into the problems of each. The position of "Plant Assistance Engineer" is an initial assignment offering these opportunities in the Plants Technical Section of this Department.

First of all we have a multiplicity of products ranging from such straightforward basic industrial chemicals as sulfuric acid to fairly involved organic agricultural chemicals such as 3-(3, 4-dichlorophenyl)-1, 1-dimethyl-urea. At each of our four major plants we produce between twelve and twenty primary chemicals, any one of which may be sold in several formulations, strengths, or grades. This variety of products gives you a fine opportunity to work on a number of problems in both the organic and inorganic field.

Our plant assistance engineers work on many types of problems. These include economic studies, preparation of requests for capital expenditures, plant-scale experiments, pilot plant studies, process and equipment design, and plant start-up supervision, aimed at the objectives of increased capacity, improved quality, production of new products, and cost reduction.

Some of the problems will concern product quality, physical appearance, or the development of new products and will involve frequent contact with salesmen who handle the product. This will give you an opportunity to see what is involved in sales work, to associate with salesmen, and occasionally to visit customers' plants.

Many problems will involve close contact with department supervisors, superintendents, and management as well as working alongside the wage roll people in the plant. Here you will be able to see some of the challenges of management responsibilities.

Some problems can be most efficiently handled by consulting with those more experienced or expert in specialized fields. Du Pont's Engineering Department is a fine example of the advantages of a large organization in which staffs of experts in fields such as distillation, filtration, materials of construction, etc., are as close to the engineer at the plant as the nearest telephone. The benefit of access to such high caliber advice to the newly-hired engineer can hardly be overemphasized.

Other problems, especially those dealing with development of new products just recently released by the Research Division, may require visits to the Du Pont Experimental Station for discussions with research workers. These visits give the engineer a chance to see what research work is like and to keep abreast of the latest developments in laboratory equipment and technique.

The preceding paragraphs deal generally with the problems and opportunities connected with the job we refer to Plant Assistance Engineering. Plant Assistance Engineering has the general objective of increasing Du Pont profits. This can be achieved by increasing our gross sales, by decreasing the unit costs of our products or by a combination of the two. Plant Assistance Engineers can influence our gross sales by studies which assist in producing more of existing products, producing new products, and improving the customer acceptance of existing products. The engineer can assist in decreasing the unit cost of our products by studies which reduce cost of raw materials, power consumption, labor requirements, repairs, or any of the direct costs involved in product manufacture.

We hope that we have shown briefly how a Plant Assistance Engineer has an opportunity to work with a broad spectrum of products and to get an idea of what is involved in such fields as sales, supervision, management, and research, as well as in career technical work.

The second major category of work carried in in the Section is referred to as "Chemical Supervision." Generally speaking, Chemical Supervisors have had at least two years' experience as Plant Assistance Engineers and have shown an aptitude for operating work.

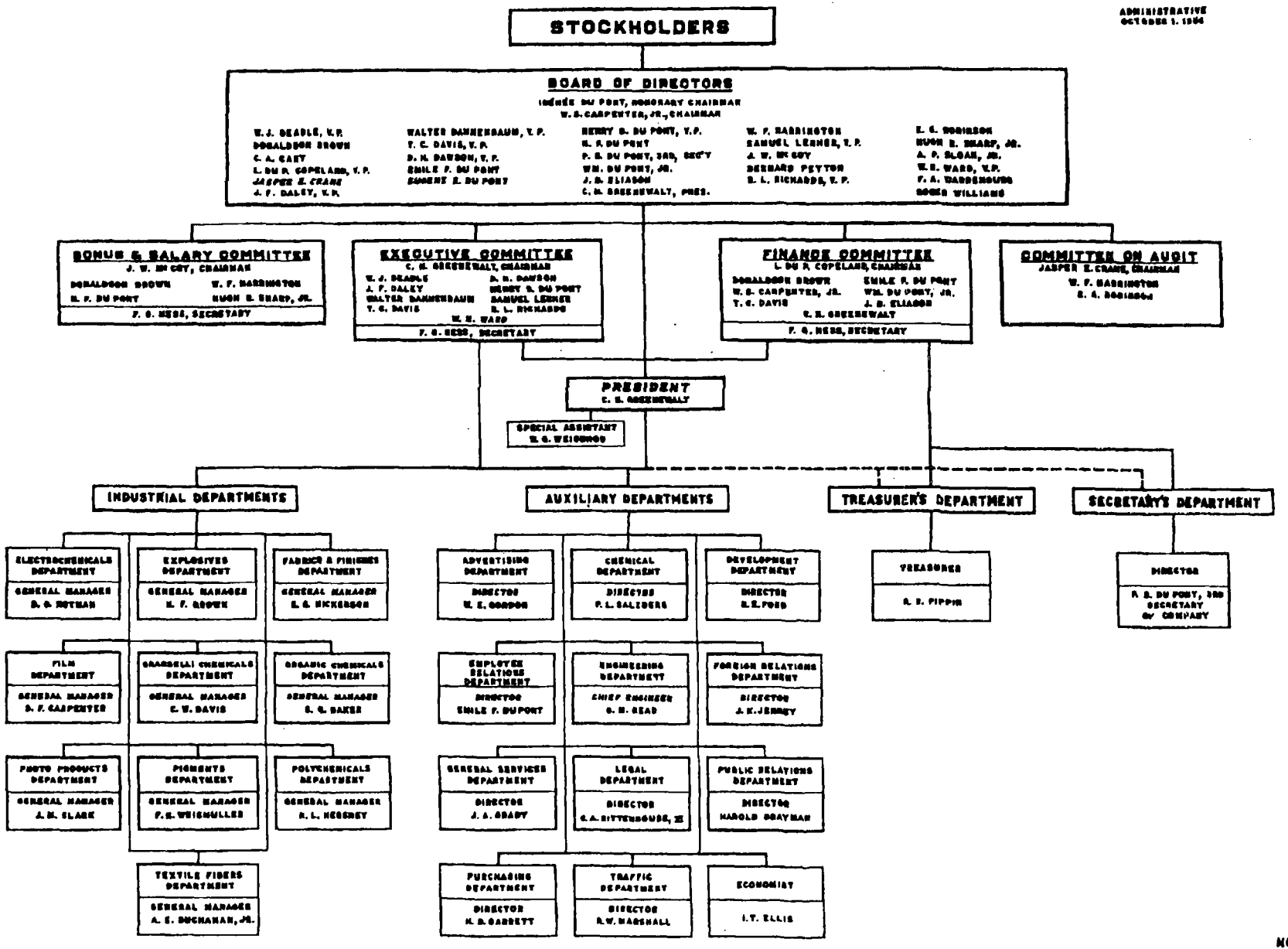
Chemical Supervision is primarily concerned with the day to day operations of the various processes. The Chemical Supervisor is responsible for the application of the best chemical and engineering knowledge to the products and processes under his supervision.

One of the major functions of a Chemical Supervisor is to prepare and keep up to date the operating instructions for each product under his jurisdiction. Because of the close contact they have with the processes, many opportunities for process improvement and cost reduction are spotted by Chemical Supervisors.

As the engineer gains experience, many varied opportunities are opened to him. He may advance to Operating Supervision, having responsibility for operating one or more producing departments. He may become a supervisor of other engineers and advance through the Plants Technical Section. Some choose to move into sales work; others to research and development jobs; and, of course, many advance to administrative posts in management.

E. I. DU PONT DE NEMOURS AND COMPANY

ADMINISTRATIVE
OCTOBER 1, 1954



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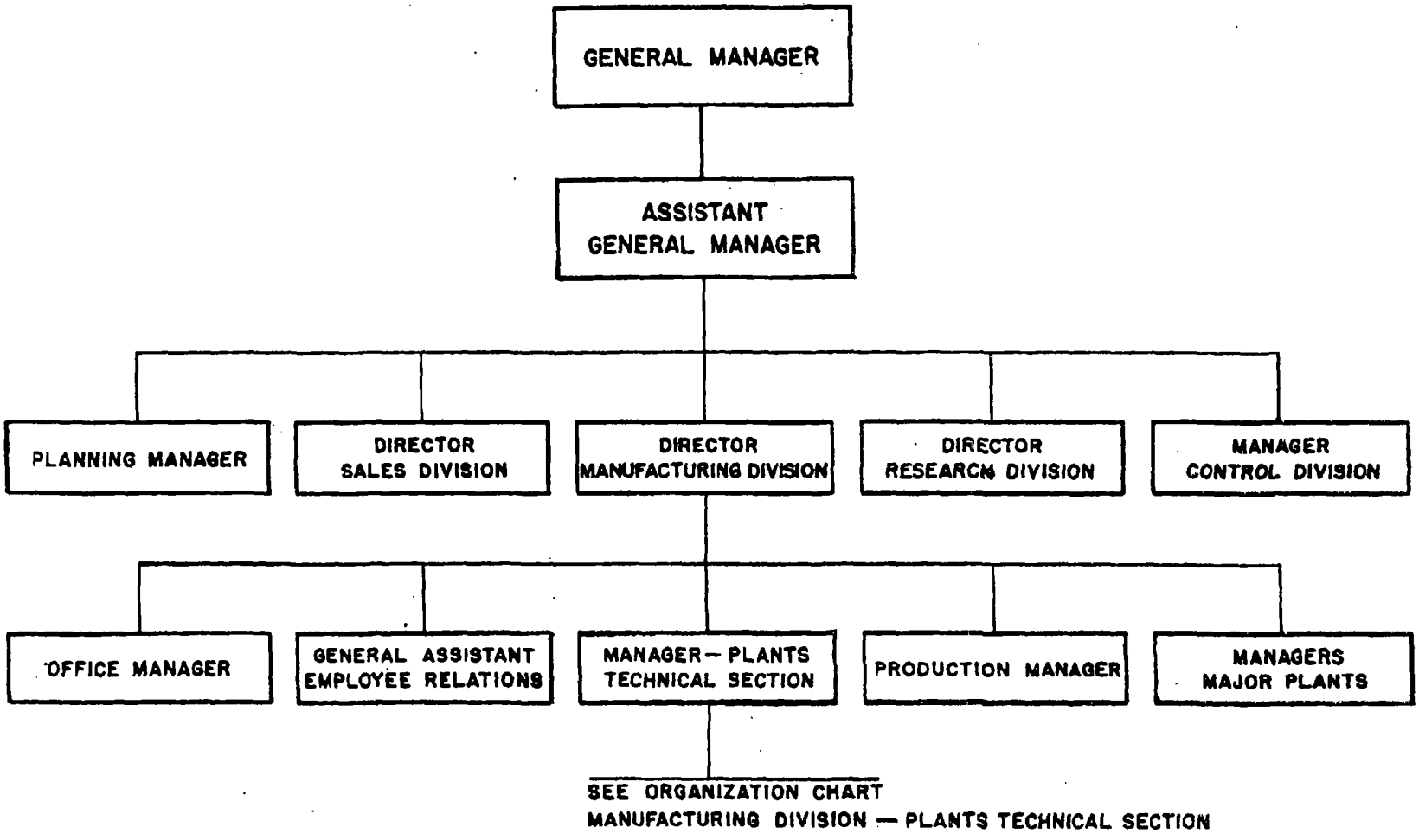
NO. 1

GRASSELLI CHEMICALS DEPARTMENT

PARTIAL ORGANIZATION CHART



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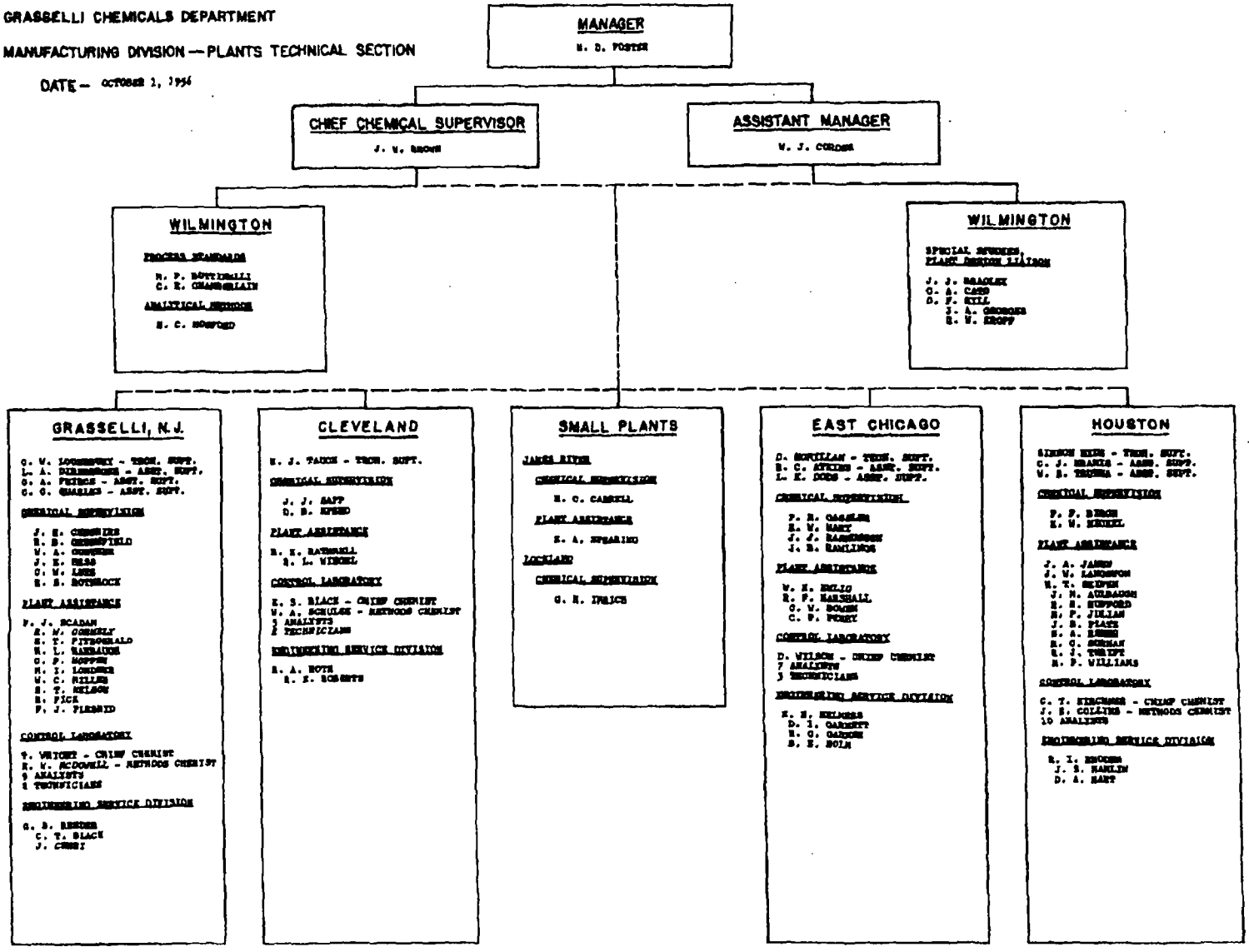
GRASSELLI CHEMICALS DEPARTMENT

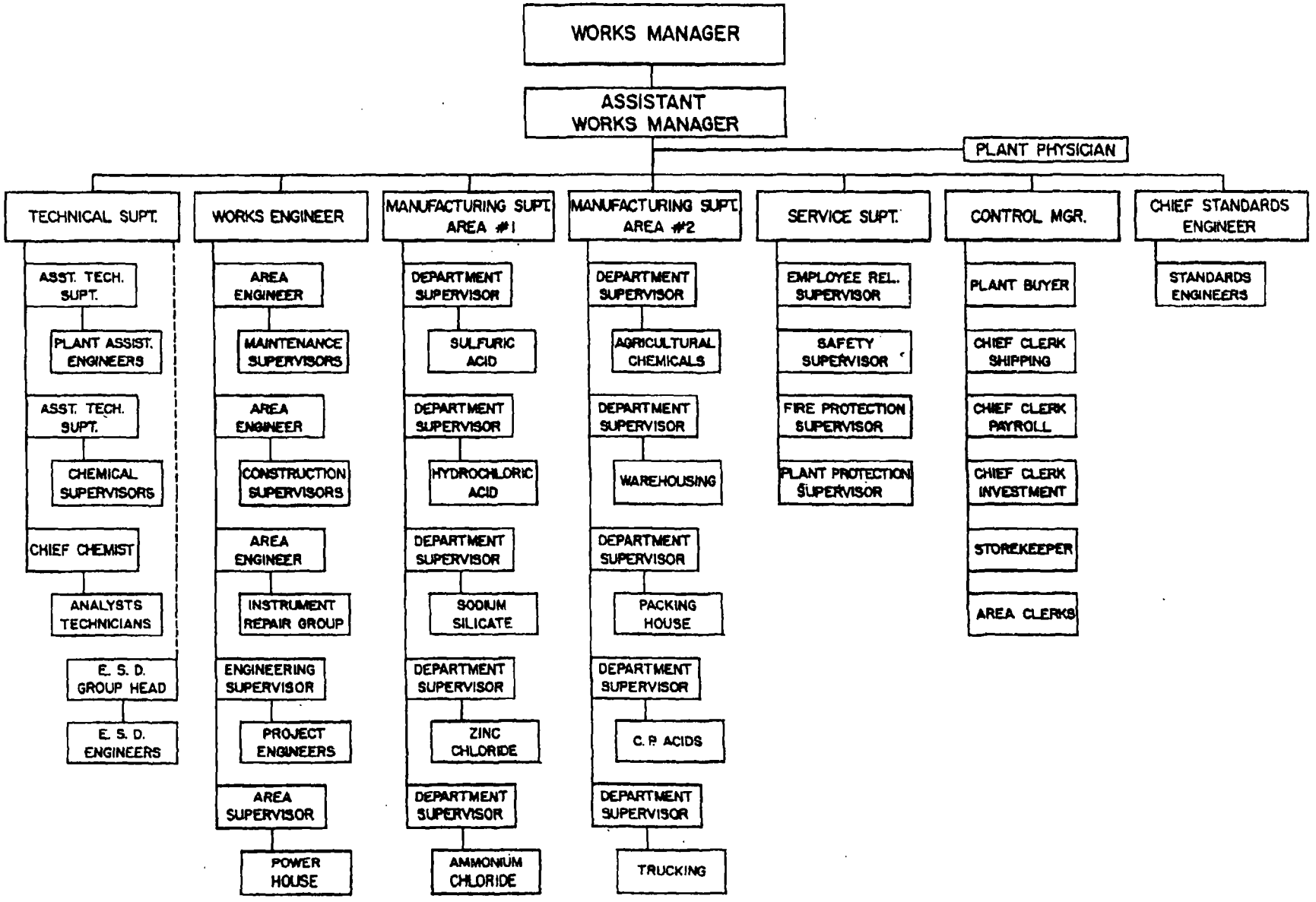
MANUFACTURING DIVISION — PLANTS TECHNICAL SECTION

DATE — OCTOBER 1, 1956



GRASSELLI CHEMICALS DEPARTMENT

TYPICAL WORKS ORGANIZATION CHART



DP20316666

BRIEF HISTORY OF THE GRASSELLI CHEMICALS DEPARTMENT

Early records show that members of the Grasselli family were in the chemical business as far back as the middle of the 15th Century in Milan, Italy.

Eugene Ramiro Grasselli, founder of the American firm, was born January 31, 1810. He was educated at Strassburg and Heidelberg and received valuable training in the family business.

In 1837, E. R. Grasselli arrived in the United States, and after a short period of employment with a Philadelphia chemical firm, he moved to Cincinnati, Ohio, where he founded his own company.

Construction of the Cincinnati plant was started in 1839 and soon sulfuric acid, alum, salt cake, Glauber's salt, nitric acid, muriatic acid, and several pharmaceuticals were being made. Most of these chemicals are still made by the Grasselli Chemicals Department. An important advance in sulfuric acid technology, the use of platinum concentrating stills, was adopted in 1845.

The American Civil War brought many problems of expansion and organization to the young chemical company. By 1865 the booming steel and petroleum industry, centered around Cleveland, had skyrocketed the need for sulfuric acid and it became evident to E. R. Grasselli that a plant at Cleveland would have a great advantage in obtaining a share of this business. A site was purchased in 1866 and in 1867 the new plant was in operation. Soon most of the chemicals

produced at the Cincinnati Works were also being made at Cleveland and several new products such as iron sulfate, aqua ammonia, soda ash, and zinc sulfate were added to the line.

By 1884 the Cleveland Works had five chamber systems for the manufacture of sulfuric acid. About this time Grasselli pioneered another new advance in sulfuric acid technology, the direct manufacture of 98% sulfuric acid. Previously all acid had been sold as 66° Baume which is 93.2%.

Another development of the 1880's was the conversion of several acid systems from brimstone to pyrites as a result of a tax on sulfur imposed by the King of Sicily. Later zinc sulfide was substituted for pyrites and this development led the Grasselli firm into zinc chemistry which is still an important part of the Grasselli Chemicals Department business.

The death of E. R. Grasselli in 1882 led to the change of the form of the company to a corporation. This was accomplished in 1885 when the organization became incorporated as the Grasselli Chemicals Company. This continued to be the firm name until it became a part of Du Pont in 1928.

Incorporation in 1885 was followed by consolidation in 1889 with Marsh and Harwood, Standard Chemical Company, and the American Chemical Company. Consolidation was followed by abandonment of the Cincinnati plant and by expansion of the Standard Chemical Company plant at Tremley, New Jersey. This

plant, which is now called the Grasselli Works, became the eastern center of operations and soon was producing most of the chemicals made at Cleveland.

A decade of rapid expansion followed the consolidation. In 1892 the East Chicago project was launched and production of sulfuric acid began in 1893. In 1896 nitric acid was added, followed by Glauber's Salt in 1898 and C. P. Acids and C. P. Ammonia in 1899.

The beginning of the 20th Century saw the company expand its activities in the zinc field with construction of smelters at Clarksburg and Meadowbrook, West Virginia. A plant to make acid and superphosphate was constructed at Birmingham, Alabama, and the Central Silica Company, sodium silicate plant at Fortville, Indiana was purchased.

In 1928 the Grasselli Chemical Company was acquired by the Du Pont Company as a wholly owned subsidiary. Subsidiaries of Grasselli which made dyestuffs and explosives were combined with other Du Pont departments or sold to other firms.

An acid plant at Ecorse, Michigan, which had been authorized prior to acquisition of Grasselli by Du Pont, became the first new unit of Grasselli when it went on stream in December, 1929.

In 1936 Grasselli became fully integrated with Du Pont as the Grasselli Chemicals Department. Plants added since integration include the Houston

Works at Houston, Texas, which began operations in 1948 and is now our fourth largest plant in terms of number of employees.

Another of our newer units, the James River Works at Richmond, Virginia, went on stream in 1947.

Latest Grasselli plant to begin operations is the Fort Hill Works, outside Cincinnati, Ohio, which started sulfuric acid production in October, 1956.

Most of our recent expansion has naturally taken place at existing plants. Some of the newer operations include "Ludox" colloidal silica facilities started in 1947, "Quilon" and "Volan" chrome complexes started in 1950, dimethyl-formamide started in 1950, sulfamic acid started in 1950, "Valron" estersil started in 1954, urea herbicides started in 1955, and "Cylan" calcium cyclamate started in 1955. Many of these new units were preceded by pilot plant or semi-works equipment, some of which were operated for several years to aid in market development or process variables studies.

The products of Grasselli are now made at eleven plants and distributed through twelve sales offices. The plants are located to provide access to the resources and waterways of the Great Lakes, Eastern Seaboard, Ohio River, and Gulf Coast.

First West of the Alleghanies

The Story of the Grasselli

Eugene Ramiro Grasselli: 1810-1882

IN 1839, a chemical manufactory had been established and the production of sulfuric acid, alum, and Le Blanc soda began at that point. That simple statement of historic fact reveals a man of clear-sighted chemical vision and uncommon courage. His vision, recognizing that capable chemical manufacturers were established in the industrial centers of the Atlantic seaboard, went beyond the heavily wooded slopes of the Alleghany Mountains—a barrier then crossed only in creaking ox carts—and foresaw correctly the economic empire of the Middle West. His courage was undaunted by the peculiar risks and difficulties of chemical manufacturing on the frontier far from the base of all industrial supplies.

That man of vision and courage was Eugene Ramiro Grasselli. But he was no reckless dreamer. His plans for a chemical-making enterprise at that outpost on the Ohio River had been carefully thought through to a definite economic conclusion based upon sound chemical logic. For he was a trained chemist—educated at the Universities of Strasbourg and Heidelberg—the son of a long line of chemical manufacturers, with practical experience gained in a gruelling apprenticeship served under his own father's direction in the family plant.

The story of Eugene Ramiro Grasselli's success is not cut from the usual American patterns. He was neither a sturdy son of the Pilgrim Fathers nor a scion of Virginia's first families. He was not born in a log cabin. His boyhood was not spent barefoot on the farm. He was not even a friendless, penniless immigrant seeking his fortune in this land of opportunities. He came of an Italian family which, since medieval times, had been druggists and chemists. The ancestral records go back to 1440 when at Torno, on Lake Como, the Grasselli were established as makers of medicine and perfumeries, chemicals and gunpowder.

At Torno his father, Giovanni Angelo Grasselli, was born in 1781; but as a young man he moved to Strasburg, Alsace, France, there to launch himself independently in the chemical business. Unsettled conditions in Northern Italy and a young man's desire to win his own success, doubtless prompted this migration. Soon after the plant at Strasburg had been established, in order to avoid the prohibitive import duties that Germany then levied against France, a plant was opened in 1810 at Wohlgelegen near Mannheim, Germany. In both plants sulfuric acid was the principal product, and the history of the Verein Chemische Fabrik, Mannheim, gives credit to Giovanni Angelo Grasselli for having been the first to bring Sicilian brimstone into Germany. Muriatic acid was also produced and the common salts of both these acids.

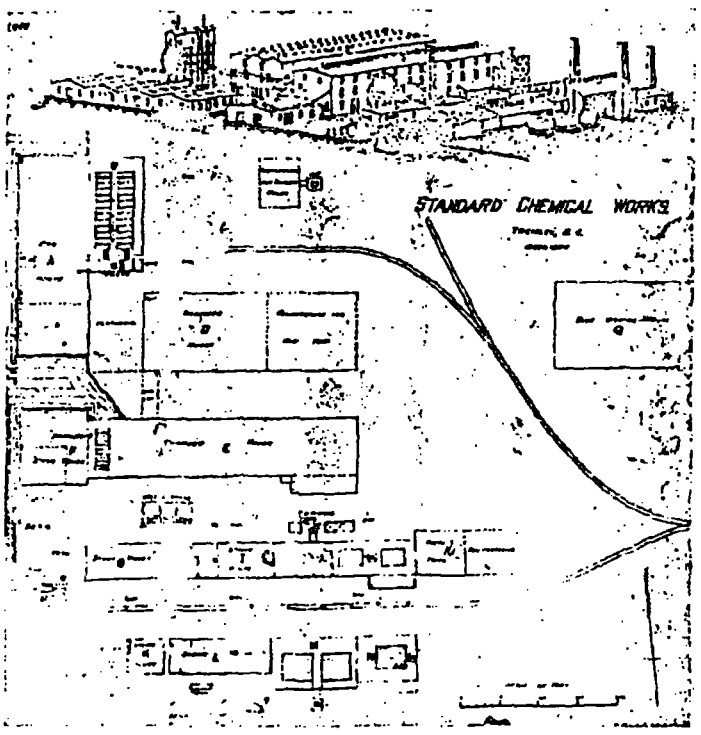
It was in Strasburg, January 31, 1810, that Eugene Ramiro Grasselli was born. There he was raised under French influence, and when he came to America, although he had attended German universities, French was his "native" tongue. He landed in Philadelphia in 1837 and found employment there with Farr and Kunzi, remaining with them two years. Doubtless from the first he considered the connection but temporary, giving him an opportunity to become acclimated to the strange land and to study the American chemical field. He came to this country inspired by the ambition, as his father had been when he left the family's ancient headquarters on Lake Como, to supply chemicals of his own manufacture to a new and growing market.

Accordingly, as early in the spring of 1839 as it was possible to travel, young Grasselli left Philadelphia. He took the train as far west as it then went, to Harrisburg; on to the foot-hills of the Alleghanies by canal; across the mountains by ox cart, and so into Pittsburgh. From Pittsburgh transportation on the Ohio River was

available by river barge, and he took this opportunity to study locations which came under his observation on this long journey of some five hundred miles to Cincinnati.

Of the various locations observed he found Cincinnati, a community of 42,000, already a thriving manufacturing center and decided to settle there. Diversified industrial development had taken place, and cattle, which at this time grazed in great numbers on the open prairies of Ohio, were brought to Cincinnati and the packing industry there gave rise to the manufacture of its by-products into soap and candles. Here was an immediate chemical market, while for the future the opening of the territory to the west and south held forth a promising prospect.

A few hundred feet from the city limits of Cincinnati he found the building site he was seeking, a triangular piece of land located on the Miami and Erie Canal which drew its waters from Lake Erie at Toledo, continued its course to Cincinnati, and emptied into the Ohio River. Projected railroad facilities were provided by a charter of the Little Miami Railroad granted in 1836, the first section of which was opened in 1843.



Working plans of the old Standard Chemical Works, 1880 to 1894, the foundations upon which were built later the big scale operations at Grasselli, New Jersey.

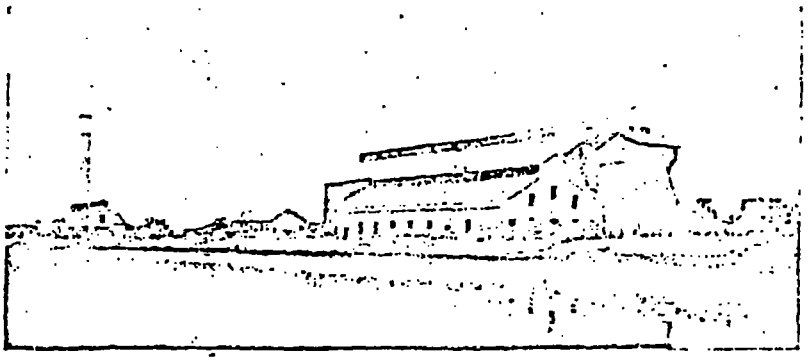
On this site he established his first factory in 1839. The office and factory building faced East and West, the factory facing west 75 feet frontage; facing east 90 feet; along Martin Street 225 feet; along East Front Street 345 feet. Sulfuric acid chambers covered a lot 165 feet frontage on the north side of Martin Street and extended back 30 feet to a hillside. The construction was a combination of stone, brick and wood.

Sulfuric acid was the key product, used at first chiefly in further chemical processes, while alum, soda ash and Glauber's salt were the principal items sold. Later nitric and muriatic acids and ammonia were produced, together with a number of pharmaceutical preparations. The market for these products expanded rapidly and the bold venture prospered. Within six years a direct competitor appeared in Cincinnati. The Marsh & Harwood Chemical Company, established by David M. Marsh and Edward Harwood, destined years later to become allies, even associates, of the Grasselli interests.

In 1845, however, Eugene Grasselli's immediate answer to this competition was to improve his own processes. From France he imported the first platinum acid refining still to be erected in the Middle West. He personally laid the brick and adjusted the loam cushion upon which this valuable piece of apparatus was to rest. A few years later, in apparatus of his own design and making, he began the manufacture of chloroform.

This item was to assume great importance during the Civil War, which created not only a great opportunity for the sale of chemicals but also undreamed of difficulties in their manufacture. Since the lower Mississippi was in the hands of the Confederates, Sicilian brimstone had to be imported through Philadelphia, and added to the extraordinary rail freight charges across the mountains was a war tax of $6 per ton. Chile nitrate, commandeered for munitions, was virtually unobtainable. Currency was deflated and prices fluctuated widely. Shipments both to and from Cincinnati became highly uncertain. In the face of these difficulties, Eugene Grasselli determined to forge ahead.

During the war period Grasselli sales, formerly handled by Allen & Company, wholesale druggists in the West, and by James P. Morgan & Company in the East, had been taken over directly by Grasselli himself. An efficient sales organization was developed by R. H. Andrews a shrewd merchant and competent organizer. At the close of the war a rapid industrial expansion began in the Middle West. There were developments that in particular opened up new, great consuming fields for sulfuric acid. Petroleum refining, steel treating



The Grasselli Chemical Works at East Chicago, taken September 20, 1893. At the time this plant was built it was to that date the most ambitious new project of the Grasselli enterprises.

(especially the cleaning of wire and nails), and the manufacture of ammonium sulfate from the ammonia in the wash water of the gas works, were all in their infancy but growing rapidly. New competition began to appear. At Pittsburgh James Irwin, an Ohio River steamboat captain, was erecting a new acid plant. A group of Cleveland petroleum refiners, including Hussey & McBride, W. C. Schofield, and W. P. Eells, president of the Commercial Bank, had incorporated the Cleveland Chemical Works.

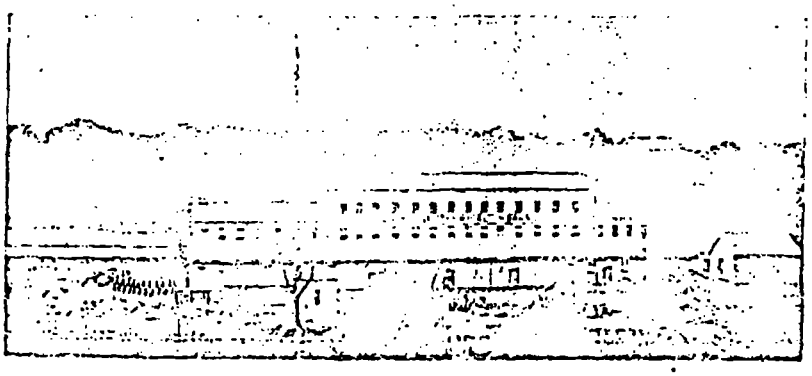
Eugene Grasselli determined to meet these developments aggressively. In 1865 he built a new plant at Cleveland, Ohio, and since the location was obviously better, both in respect to raw materials and to customers, he resolved to move his headquarters there.

This meant uprooting his family. He had married Fredericka Eisenbarth in Philadelphia and they had eight children. The eldest, a daughter, Lucretia, had married Daniel Bailey, a promising young mechanical engineer who was now connected with the business. The fifth child, a son, Caesar Augustin Grasselli, then a boy of seventeen, was already working with his father; in fact, at fifteen he left school to go to work in the plant. Many years later when this same boy became the Chairman of the Board of the great Grasselli Chemical Company, he wrote: "I cannot remember the time when I was not interested in chemistry and did not expect to follow my father in this business."

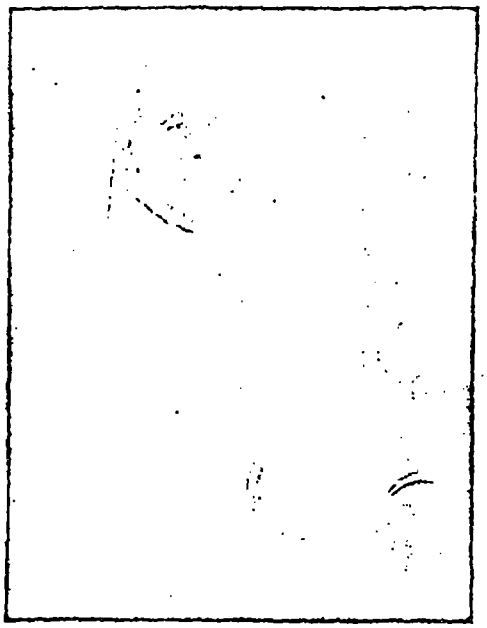
Father and son had had a long serious talk. Eugene Grasselli pointed out to his son that a thoroughgoing apprenticeship through every operating and administrative department would give him, if supplemented by some formal instruction in chemistry, a training of great practical value. With that charm and sincerity for which he was always noted he pictured to the youthful Caesar the romance of the chemical industry, its great service to civilization as the handmaiden of all manufacturing activity. This was rich fuel to fire the enthusiasm of a boy who, by long inheritance and strong inclination, was foreordained to a chemical career.

The next day young C. A. Grasselli donned overalls and went to work in the acid plant. Nights he studied chemistry by special arrangement with a professor from the Karlsruhe University. Always he was under the friendly, watchful eye of a father who instructed him in practical mechanics and engineering in the machine shop, made opportunity for new experiments, disclosed process workings, and finally taught him the commercial end of the business through office training, instructing him in new duties and putting on him always increasing responsibilities. Thus, as has so frequently happened in the American chemical industry, the enterprise founded by the father as a personal business was carried forward by his son to become a great corporation.

C. A. Grasselli's first opportunity came with the building of the new Cleveland Plant. Land had been purchased on the Cuyahoga River. The plans were drawn by Eugene Grasselli himself, and here he again took advantage of a location beside a river and beneath a high hill. The execution of these plans he put in the hands of his engineer son-in-law, Daniel Bailey. The boy, Caesar, went along as his assistant and on that construction job worked as a brick-layer and stone mason, plumber, pipe-fitter and a tin-smith, mechanic and boilerman. Literally he knew that plant from the ground up.



The Grasselli Chemical Works at Cleveland from a photograph taken in 1869. Note the high stack on the hill and the rural surroundings of what is now a completely industrialized location.



Caesar Augustin Grasselli

Eugene Grasselli was actively engaged in the operation of the business in Cincinnati. Daniel Bailey supervised the construction of the plant on Independence Road in Cleveland, and as a monument to the conclusion of the engineering and soundness of the plans from which the plant was built, the buildings erected during this original construction still stand and are useful today in the Cleveland Works. They stand as a tribute to the efficiency and the painstaking, conscientious execution of the work entrusted to Daniel Bailey. Through his long life and connection with these interests he was one of the main supporters of Caesar Grasselli in his many activities.

By the spring of 1867 the new plant was ready to go into production. The Grasselli family moved to Cleveland, Daniel Bailey returning to Cincinnati to take up his duties at that point. From an operating point of view the beginning was auspicious. Eugene Grasselli had made the most of his wide, practical experience, nor had he hesitated to introduce innovations. Up to that time sulfuric acid chambers in this country had been soldered, but he had brought to Cleveland a Frenchman named Valiant, skilled in the new art of burning overhand lead seams. Output in the new apparatus exceeded even calculated capacities, but the booming chemical demand which had prompted the new plant collapsed suddenly in the post-war panic of 1867. After six months' operation, in the first week of January, 1868, the total sales were sixty-eight cents and the cash receipts seventy-five cents.

Their troubles were aggravated by an epizootic epidemic, a sort of equine influenza that paralyzed the horse-drawn transportation of the Middle West. Oxen were brought in from the farms to haul wagons, and teamsters familiar with these bovine prime movers commanded fancy wages. Deprived of their horses, everyone in the sections affected by the epidemic was compelled to walk. C. A. Grasselli walked three miles morning and night from his home to the plant, while in Cincinnati Mr. Bailey must trudge seven miles twice a day. It was at this time that the high-wheeled velocipede first became widely popular.

During the first seventeen years of its operation there was no railway siding in the Cleveland plant. It was not until 1884 that a spur was run out from what was then known as the Valley Railroad. Up to that time all materials that could be shipped by water came into and went out of the plant from the adjacent canal. Horses and drays moved all other materials. The coming of the railway prompted shipments of acid in tank cars. These were built of iron plates and had a carrying capacity of 27,000 pounds. Remembering the 60 pound rails of that time these seemed heavy loads, but the Grasselli believed that greater capacities were possible, and in later years broke all records with a tank car carrying seventy tons of sulfuric acid.

Chemical demand having died during the panic of 1867, chemical prices sickened dangerously, and the convalescence of the market was made tedious and difficult because the largest consumers, the oil refiners, were just at that time engaged in a life-and-death struggle. In their fierce competitive battle each sought every advantage and all pounded away at sulfuric prices, endeavoring to purchase as cheaply as possible. The situation became critical for the acid makers. In self defense they formed a protective alliance.

In those days the approved method of thwarting the price chiseller was by means of "gentlemen's agreements," and Messrs. Eells and Schofield representing the Cleveland Chemical Works, David M. Marsh of Marsh & Harwood, and Eugene Grasselli agreed to hold down production and to stop cut-throat competition. They further agreed that Mr. Marsh was gradually to take over the Cleveland Chemical Works, and Mr. Grasselli furnished a large part of the capital to make this purchase. Eventually these two acquired that company and so the ancient rivals became partners. This connection was more closely cemented when in 1870 they joined in buying out the plant built at Titusville, Penna., by Mr. Rainey of the Lodi Acid Works in New Jersey. Close to the Titusville plant they put a new refinery for the recovery of sludge acid. This plant was erected by John Metz, apprenticed a plumber, who became a chemical engineer and later was in charge of the works at Grasselli, New Jersey. Soon after this Eugene Grasselli bought out his partner's interest in these two Titusville plants and placed Julius Daub, a discreet Hollander, in charge. At the same time Mr. Marsh assumed active control of the Cleveland Chemical Works, having as secretary of that company I. H. Mansfield, formerly of Hussey and McBride, whose

son Howard is today director of sales of Grasselli chemicals.

In the meanwhile the oil refiners were battling unmercifully. Prices went lower and lower and in 1872 all the important refiners gathered at the Metropolitan Hotel in New York. They invited the acid manufacturers from all over the country to meet with them. Their invitation veiled the threat to enter the acid business themselves so that the chemical manufacturers decided that discretion was the better part of valor and that they had best enter into negotiations. From their headquarters at the St. Nicholas Hotel they sent forth their envoy, Mr. Mansfield, to meet Charles Pratt, the minister plenipotentiary of the oil people. Mr. Mansfield delivered the counter-ultimatum that if the refiners made acid, the chemical makers would refine oil. At that time the chemical manufacturers, while not so numerous, commanded greater financial resources; and after protracted negotiations by this form of collective bargaining, which today seems very strange and unorthodox, a fair price for sulfuric acid was established.

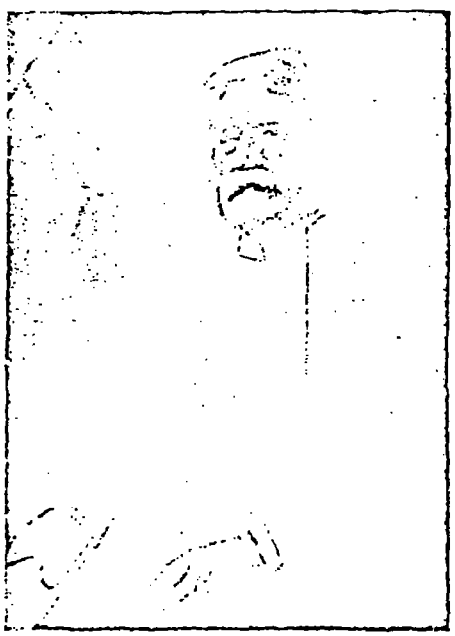
From the very first the connections of the Grasselli firm with the development of the petroleum industry were intimate. In the very early days of the oil refining industry, Eugene Grasselli undertook in a small plant, known as the Newport Oil Company, Newport, Kentucky, to extract petroleum from cannel coal. For reasons not in the records this venture was never successful.

Many years later John D. Rockefeller, who had been an acid customer since 1860 and whose original refinery was almost adjoining the Grasselli Cleveland plant, proposed a combination of the interests to C. A. Grasselli. This proposal was undoubtedly prompted by the feeling that the chemical knowledge and experience then developed in the Grasselli organization could be made very useful in expanding scientifically the refining of petroleum. C. A. Grasselli was to take care of and develop the chemical industry in connection with the oil interests, which development was to be continued under the personal direction of Mr. Rockefeller. Mr. Grasselli inquired what provision was to be made for the Marsh interests, and receiving the reply that there was no need for Mr. Marsh in the picture, he refused to give any further consideration to the matter because of his loyalty to his old friend.

The Cleveland newspapers of March 21, 1873, carried in their classified columns a modest announcement of great import to the Grasselli family: "My son, Caesar A. Grasselli, has been admitted as partner in the above works, said partnership to have effect from January 1st, 1873. E. Grasselli." The business was continued under the name E. Grasselli & Son, until the death of Eugene Grasselli, January 31, 1882.

C. A. Grasselli, or "C. A." as he was universally known among his friends and associates, continued the development of the manufacture of sulfuric acid as a major product. Early convinced that this acid ought to be produced close to its market, he considerably increased the number of Grasselli plants. The first steps in this direction were taken in 1889, when the Marsh & Harwood Company was wholly absorbed and The Standard Acid Works in New Jersey purchased. This latter was the nucleus around which the great plant at Grasselli, New Jersey, has grown. The Marsh & Harwood interests were already operating plants at Broughton, Pittsburgh, and Beaver Falls, Pennsylvania; Olean, New York; and Willow, Ohio. Expansion continued steadily. In 1892 the plant at East Chicago was built, and the plant at Birmingham, Alabama, in 1899. In this southern location the company branched out into the manufacture of acid phosphate and mixed fertilizers. Through the purchase of the Standard Acid Company, Tonawanda, New York, in 1900 acetic acid was added and this material was later produced both at Grasselli and East Chicago. In 1902, with the purchase of the Standard Silicate Company, Fortville, Indiana, silicate of soda became one of the Grasselli products.

Up to this point the development of the Grasselli Company had been rapid but along established lines. Points had been carefully selected in the center of good consuming areas, and sulfuric acid plants were erected in which a logical chain of chemical products was produced. In 1904, however, C. A. Grasselli broke with this traditional policy. At Clarksburg, West Virginia, he erected furnaces for the manufacture of zinc. Additional plants for zinc smelting were later erected at Meadowbrook, West Virginia, and Terre Haute, Indiana. The extraction of sulfur from zinc-bearing



Daniel Bailey

ores was carried on in various sulfuric acid plants at East Chicago, Cleveland, Niles, New Castle and Canton, and the roasted cinders shipped to the zinc plants in Meadowbrook, West Virginia, and Terre Haute, Indiana. Just before his death another plant was added at Wurtland, Kentucky.

C. A. Grasselli was powerfully equipped for success as a chemical industrialist. He had, as we have seen, a thorough grounding in plant construction and operation. Behind this knowledge and experience he had a contagious enthusiasm for the chemical industry, backed by a profound conviction of its fundamental importance in modern civilization. He was an extraordinary executive, building up a huge organization on the model supplied him by his old friend, John D. Rockefeller. This was based on the committee form of administration, an organization to which the Grasselli Company adhered long after most large corporations had adopted the so-called staff-and-line system. His primary interest was always production, but he was a good merchant and he had great financial ability. During his lifetime the assets of the company under his control grew from $600,000 to $30,000,000.

His business life spanned the period of the American chemical industry's development from a comparatively few simple, standard, inorganic chemicals to the large scale production of a complex line of both organic and inorganic materials. His experience began at the acid chambers and ended at the head of the directors' table. Under his management the company passed from a personally conducted proprietorship to a highly organized corporation. Living through this tremendously expansive period, he himself grew. Yet to the very end he was always a personal leader rather than an impersonal executive. As long as he was active in affairs he maintained intimate contact with his men. And he was so cheery, so frank, so generous a personality that all who came in close contact with C. A. Grasselli loved him.

Like Edward Mallinckrodt, that other great chemical pioneer of the Middle West, he was an open-handed philanthropist. A devout Roman Catholic, his warm human sympathies reached out into those charitable institutions which administered to the sick, the helpless, the blind, the maimed, the orphaned. His closest interests were two homes, the one for the blind, the other for crippled children. In her later years his wife was an invalid, and after her death he remodeled and equipped their beautiful residence on Euclid Avenue and gave it as the Johanna Grasselli Home for Crippled Children. Another residence was given for work among the blind, and is today the headquarters for the "Society for the Blind." Only a few months before his own death, "the blind" held a reception for him and presented him with a small silver cup which he kept on his library mantelpiece. "I keep it here," he said to intimate friends once. "It is too full of love even to hold flowers."

C. A. Grasselli married in 1871, a schoolmate of his sisters in Cincinnati, Johanna Ireland. On their wedding trip they went to Europe and then began long years of friendship and business association with a number of foreign chemical firms. First he went to Torno and saw on ancient doorways heavy brass plates bearing his family name. He visited the scene of his grandfather's earliest chemical triumph in Strasburg, which city was just then going through the phase of being assimilated by Germany after the Franco-Prussian War. He went to the Wohlgelegen Works near Mannheim and was shown the big, square, substantial stone building his grandfather had built, and in which he had made sulfuric acid from Sicilian brimstone. In addition to meeting the leading chemical manufacturers of France and Germany, he crossed the Channel and visited Sir Charles Tennant at his famous St. Rollox Works near Glasgow.

More than a quarter of a century passed before Mr. Grasselli again visited Europe. In 1899, accompanied by I. P. Lilme, the company's chief chemical engineer, he made another chemical tour. He visited the plants of Weiler Ter Meer near Cologne, of Vorstner and Bruneberg at Kalk, the zinc works of Julius Grillo at Oberhausen, the Frankfort and Griesheim plants of Cassella, the Bayer works at Leverkusen, the Goldschmidt zinc chloride plant, the Hoechst works of Meister Lucius and Bruning, the Merck pharmaceutical plant at Darmstadt, and the Badische Anilin und Soda Fabrik. Everywhere he made important business connections and won new, warm friends; Dr. Duisberg, Dr. E. Merck, Max Hasenclever, Dr. Pauli, Dr. Brunck, and Franz ter Meer. It is quite characteristic of him that after the World War he never wanted again to visit Europe.

C. A. Grasselli died July 28, 1927. Outside of the immediate realm of his chemical business he had won important distinctions. King Victor Emanuel III had knighted him in 1910 with the Order of the Golden Crown of Italy, and in 1921 made him a commander of that same order for the honor which he had brought to the name of Italy in other lands. In 1923 Pope Pius XI bestowed upon him the decoration of St. Gregory the Great. Two American universities had conferred upon him the honorary degree of Doctor of Science. For many years he had been president of two savings banks, which in 1921 were merged with the Union Trust Company, of which institution he became and continued to be a director. Mrs. Grasselli had died in 1910, but their five children were living, T. S. Grasselli, president of the company, Eugene R., vice president and treasurer, Josephine and Ida Grasselli, and Mrs. W. T. Cashman.

A year after his death, in October 1928, the Grasselli and the du Pont interests were merged, and one hundred fifty thousand shares of du Pont stock, with a market value at the time of over $64,000,000, were exchanged. The consolidation was consummated by T. S. Grasselli and Lammot du Pont, whose fathers, C. A. Grasselli and Lammot du Pont, had, back in the early 80's, seriously considered a combination of their inter-

ests. Those negotiations had been abruptly broken off, March 29, 1884, by the sudden death of the elder Lammot du Pont.

C. A. Grasselli and the elder Lammot du Pont had many business dealings together, and this little personal footnote to the history of their companies is an appropriate ending to this story.

Lammot du Pont, who was a vigorous and original-minded chemical genius, visited C. A. Grasselli one day in Cleveland, seeking a sulfuric acid of then unheard of strength and purity.

"I think we can make it," said Mr. Grasselli.

"I'll bet you a box of cigars you can't."

The acid was made and delivered. In due course two boxes of the finest cigars were delivered to Mr. Grasselli's office. One of the original boxes lay in Mr. Grasselli's cigar humidor, and in his handwriting on the bottom of the box was an inscription definitely identifying these as the cigars having been won from Lammot du Pont by the wager. On his death the cigar box and contents came to his son, T. S. Grasselli, who, when the consolidation was completed, gave them to Lammot du Pont.

Pyrites Industry in 1936

Reflecting increased activity in the chemical industries, domestic pyrites production established a new record high in '36, according to Robert H. Ridgway and A. W. Mitchell of the U. S. Bureau of Mines. Output rose to 547,236 long tons containing 39.6 per cent. sulfur compared with 514,192 tons containing 39.5 per cent. sulfur in '35. Of the '36 total 361,482 tons were consumed by the producing companies and 181,494 tons were sold compared with 348,891 tons and 163,911 tons in '35. Twenty-one per cent. of the output was reported as lump and the remainder fines, the bulk of the latter being flotation concentrates. Production of coal brasses were reported by two operators in Illinois and one in Kansas.

Tennessee had the largest production in '36; other producers were California, Colorado, Illinois, Kansas, Missouri, Montana, New York, Virginia and Wisconsin.

Imports of pyrites for consumption in '36 were the largest since '29 and amounted to 429,313 long tons compared with 397,113 tons in '35. Imports from Spain, the largest source, decreased in '36, due to civil war conditions in that country. Imports from Spain, however, were augmented by increased shipments from Canada and by shipments from Portugal. Of the '36 total Spain furnished 309,114 long tons, Portugal 59,804 tons, Canada 55,105 tons and Belgium 5,290 tons.

Exports of pyrites are not shown separately by the Bureau of Foreign and Domestic Commerce. No exports were reported by the producing companies in '35 and '36.

The average price of pyrites, as quoted by trade journals was 12-13 cents per long ton unit of sulfur throughout the year.

Sun-burn Proofing for Textiles

By preventing the transmission of ultra-violet light certain materials assist in preventing sunburn. Aesculin is one of the most favored, though a little expensive. Quinine salts are also used in ointments for application to exposed parts of the body. The I.G. have patented certain stilbene derivatives and phenylbenzimidazole is stated to be protective in layers as thin as 0.03 mm., allowing the skin to tan without at the same time causing blisters. Japanese Patent No. 111,539, 1935, reveals a new method of preventing the after effects of too long exposure.

Names of the Month—

A Current Supplement to the Chemical Who's Who

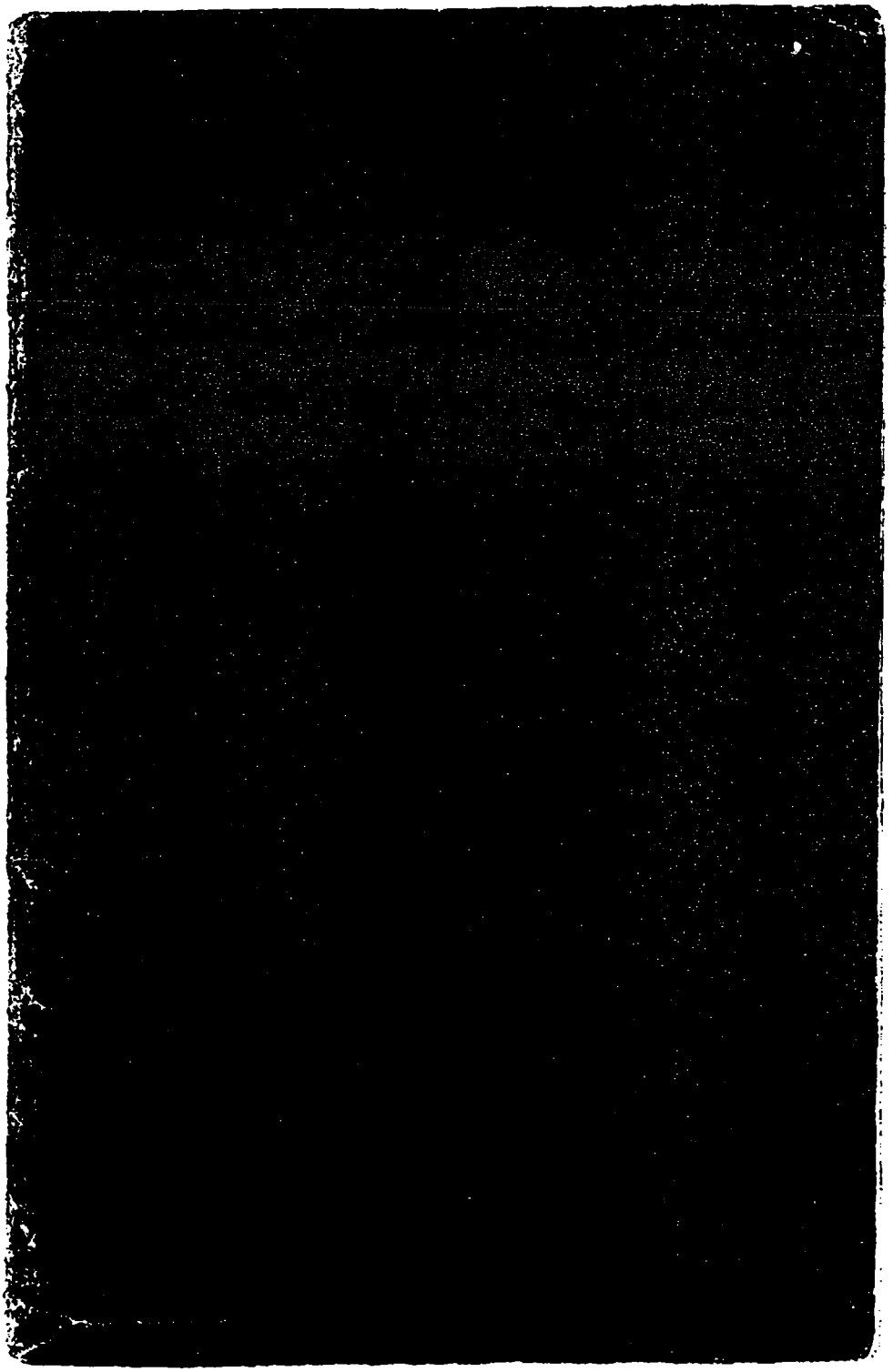
BISSELL, Everett S., gen. mgr., Mixing Equipment Co.; b- Springfield, Mo., 28 Mar. 1901; mar. Jewell E. Myers, Weir, Kans., 24 June 1923, 2 sons; educat. Kans. State Teachers Coll., B.S. 1928. U. S. Marine Corps, Schl. of Chem., principal 1920-22; United Chem. Co., compounding foreman, 1922; Procter & Gamble, analyst 1922; Dodge Bros., lab. res., plant control 1923-28; Bausch & Lomb Optical Co., chg. application study, tech. advisor sales 1929-37. Memb. A.C.S.; Kappa Delta Pi. Club: Chamb. Comm. Hobbies: photography, astronomy, books. Address: 1026 Garson Ave., Rochester, N. Y.

MERCK, George Wilhelm, pres. and dir., Merck & Co., Inc.; b- N. Y. City, 29 Mar. 1894; mar. Serena Stevens, Nov. 1926, 3 sons, 2 daus.; educat. Harvard, A.B. 1915. Entire career with Merck & Co., Inc. N. Y. & Long Branch RR, dir.; United N. J. RR and Canal Co., dir.; State of N. J., memb. Banking Advisory Bd.; N. J. Chamb. Comm., dir. and v-p.; Orange Memorial Hospital, memb. Bd. of Governors; National Conference of Jews and Christians, dir. Memb. Mfg. Chemists' Assn., exec. com.; Amer. Drug Mfrs. Assn., exec. com.; Nat'l Assn. of Mfrs., dir. for N. J. Clubs: University, Harvard, Chemists', Down Town Assn. (N. Y. City); Essex (Newark, N. J.); University (St. Louis); Essex County and Rock Spring Country (W. Orange, N. J.); Quogue Field, (Quogue, N. Y.). Address: Merck & Co., Inc., Rahway, N. J.

PARKS, Harold Coburn, lab. chf., Devoe & Raynolds Co., Inc.; Cleveland, 24 Sept. 1894; mar. Dorothy E. Page, Merchantville, N. J., 17 Apr. 1923; 1 son; educat., Yale Shef., Ph.D. 1917. Dr. Henry A. Gardner, Inst. Paint & Varn. Res., res. chem., 1919-25; Congoleum-Nairn, Inc., control res. chem. 1925-28; Devoe & Raynolds Co., Inc., res. chem., lab. hd. 1928 to date. U.S.A., duration of war. Memb. A.I.C. Hobbies: tennis, golf. Address: 34 Oliver St., Newark, N. J.

STAUFFER, William Otterbein, supvr., chem. project div., res. dept., Remington Arms Co.; b- Easton, O., 25 Dec. 1897; mar. Pauline Stubbs, West Elkton, O., 28 Nov. 1925; 2 daus.; educat., Otterbein Coll., B.S. 1922; Ohio State Univ., M.S. 1925. Ohio Salt Co. 1922-23; Otterbein Coll., instr. 1923-24; duPont Co., exp. sta. 1925-36; Remington Arms Co. 1936 to date. U.S.A. 1918-19. Arranged table of solubilities of inorganic substances for Chem. Engineer's Handbook. Memb. A.C.S.; Sigma Xi; F. & A. M. Hobby: woodworking. Address: Remington Arms Co., Bridgeport, Conn.

SYMONS, George Edgar, chf. chem., Buffalo Sewer Authority; b- Danville, Ill, 20 Apr. 1903; mar. Virginia Thompson, Sullivan, Ill., 16 July 1928, 1 son; educat., Univ. Wis. 1922-24; Univ. Ill., B.S. with honors 1928, M.S. 1930, Ph.D. 1932. Interstate Water Co., chem. 1921-22, 1924-25; San. Dist. Decatur, Ill., chem. 1925-26; Ill. State Water Survey, res. chem. 1928-33; Univ. Ill., instr. chem. 1930-33; Freeport Sulphur Co., res. chem. 1933-34; Sullivan, Ill., consultant 1934-35; Greeley & Hansen, engr. 1935-36; Buffalo Sewer Authority, chf. Chem., 1936 to date. Moultrie Co., Ill., Planning Commis., chmn. 1934-35. Investigations of the biochem. oxygen demand test, sludge digestion, mechanism of methane fermentation, chlorine demand of sewage. Memb. A.C.S.; Sigma Xi; Phi Lambda Upsilon; Mu Sau. Hobbies: Photography, writing. Address: Bird Island Lab., Buffalo, N. Y.



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HISTORY OF GRASSELLI PLANTS
WAREHOUSES AND PROPERTIES
1839—1938

GENERAL

First Grasselli Plant established at Cincinnati, Ohio	*Apr.* 1839
Main Office located at Cleveland, Ohio Plant	1866
Marsh & Harwood Chemical acquired	1885
Main Office moved to the Arcade, Cleveland, Ohio	Nov. 1890
Main Office moved to the Guardian Bldg., Cleveland, Ohio	Dec. 1916
Merger with E. I. du Pont de Nemours & Company	Nov. 1928
Main Office moved to DuPont Building, Wilmington, Delaware	Feb. 1937

CLEVELAND, OHIO PLANT

	Began Operation	Discontinued Operation
Plant established—1866	1866	
First Sulphuric Chamber System—Sys. No. 1	July 1867	1933
Muriatic Acid and Salt Cake (Hand Furnaces)	1867	Sys. 1&5 Aug. 1929
		Sys. 2&3 Dec. 1929
		Sys. 4 Dec. 1933
Nitric Acid—Nitrate of Soda process	1877	
—Purchased and rehandled (Dec. 1929)		
Mixed Acid	1877	
First Big Flood (Feb. 5, 1885)		
Marsh & Harwood Chemical acquired (1885)		
Main Office—moved to the Arcade (Nov., 1890)		
Glauber's Salt	1896	
—Mechanical crystallization (Dec. 1931)		
Zinc Sulphate	1896	
—Flake (Jan. 1932)		
—Mechanical crystallization (1932)		
—Powdered (Nov. 1934)		
—Produced from No. 2 Crude (Dec. 1935)		
Zinc Chloride	1900	
Ammonium Chloride	1902	
—"C" Grade NH_3 stripper installed (Oct. 1934)		
—Manufacture of Leaded Crystal (Aug. 1935)		
Lime Sulphur Solution	1902	
Ammonia Distillation Apparatus for Aqua Ammonia	1903	Jan. 1927
First Hegeler Zinc Ore Kiln—Sys. No. 3	1904	1935
Second Hegelar Zinc Ore Kiln—Sys. No. 4	1906	1935
Salt Cake Building destroyed by fire (Aug. 1906—Reconstructed 1907)		
C. P. Ammonia—Prod. from "C" Grade NH_3	1906	
—Prod. from Anhydrous Ammonia (Dec. 1930)		
Battery Zinc	1906	May 1932
Cadmium Sulphide	1907	Dec. 1931
No. 2 Power Plant constructed	Dec. 1908	
Ferric Sulphate	Mar. 1909	June 1914
Sherardizing Zinc	Oct. 1911	
Sal Soda	1911	May 1913
Second Big Flood (Mar. 25, 1913)		

CLEVELAND, OHIO PLANT (CONT'D)

	Began Operation	Discontinued Operation
Silicate of Soda	May 1914	
G. B. S. Soda—Originally called Metal Pickle	July 1914	
Cadmium Sulphate	Jan. 1915	Oct. 1931
Nogas	Feb. 1916	
Experimental Laboratory—Constructed	Apr. 1917	
—Contact Mass building erected (Sept. 1928)		
—Enlarged (June 1938)		
Sulphuric Acid Chamber Sys. No. 2—Destroyed by fire (Oct. 1918)		
—Reconstructed (April 1919)		
Mech. Salt Cake rake development	Jan. 1920	
Muriatic Acid—Sys. No. 6 & 7—Increasing capacity from 26,200 tons to 41,700 tons/yr.	July 1920	
—Sys. No. 8—Increasing capacity from 41,700 tons to 47,500 tons/yr.	Dec. 1920	
—Sys. No. 7—Old absorption unit dismantled (Sept. 1934)		
—Sys. No. 7—New tower absorption unit installed (Dec. 1934)		
—Sys. No. 9—Increasing capacity from 47,500 to 53,300 tons/yr.	May 1929	
—Sys. No. 10—Increasing capacity from 53,300 to 61,000 tons/yr.	Apr. 1930	
First Brimstone barge received (Oct. 1921)		
Ammonia Oxidation App.—Sys. No. 2	Nov. 1921	
—Sys. No. 1	Apr. 1922	1933
Cadmium Hydrate	Sept. 1922	
Dry Lime Sulphur Mixtures	May 1924	Mar. 1936
Cadalyte	Nov. 1924	
Cadmium Anodes	Apr. 1925	
Zinc Ammonium Chloride	June 1926	
Grasselerators	Aug. 1926	
Plant Food	Feb. 1927	Jan. 1929
Oil Emulsion	Mar. 1927	Apr. 1929
Ammonium Sulphide—NH_3-FeS & H_2SO_4 process	June 1927	Sept. 1934
—Sulphur and Caustic Soda H_2S generation	Oct. 1934	July 1936
Ammonia Oxidation Equipment—Sys. No. 4	Nov. 1927	
Sulforon	Apr. 1928	Mar. 1936
Sulphuric Acid Contact No. 1—Increasing capacity from 109,000 to 136,000 tons/yr.	June 1928	
—Exp. unit with capacity of 8,200 tons/yr. (1938)		
Stripping Acid	May 1929	May 1936
Ammonia Oxidation Equipment—Sys. No. 3	June 1929	1933
Duclean No. 1	July 1929	
Acetic Acid (Niacet)—First tank car received and rehandled	June 1930	
Meta Silicate of Soda	Jan. 1931	Mar. 1935
Detergents	May 1931	
Duclean No. 2	July 1931	
Pioneer Mfg. Div.	Jan. 1932	
—Enlarged (Aug. 1932)		
—Enlarged (Oct. 1937)		
Sulphuric Acid Sys. No. 3—Written off books (June 1932)		
Sulphuric Acid Sys. No. 4—Zinc Kiln written off books (June 1932)		
No. 1 Power Plant	—	July 1932
Chromated Zinc Chloride	May 1934	

EAST CHICAGO, INDIANA PLANT

	Began Operation	Discontinued Operation
Plant established	1892	
Sulphuric Acid Chamber Sys. No. 1	1893	
—Chamber Acid recirculation (Aug. 1937)		
Nitric Acid ($NaNO_3$ process)	1896	
—Purchased and rehandled (Sept. 1929)		
Mixed Acid	1897	July 1930
Muriatic Acid and Salt Cake—10 hand units	1897	Sys. 5&6 1934 Sys. 1&2 1934
—Mechanical unit (Jan. 1936)		
Glauber's Salt	1898	
C. P. Acids	1899	
C. P. Sulphuric—Produced from Oleum (June 1922)		
C. P. Muriatic—Produced by electrical distillation (Jan. 1924)		
C. P. Nitric—Produced by electrical distillation (July 1924)		
C. P. Ammonia	1899	Transferred to Cleveland 1906
Silicate of Soda	Sept. 1902	
—Fuel Oil oper. No. 1 Furnace (Dec. 1930)		
Acetic Acid From "Gray Lime"	1902	
—Purchased and rehandled (May 1930)		
Chloride of Zinc	1902	
First Hegeler Zinc Ore Kiln Con. O. Sys. No. 3	1905	Oct. 1929
Perric Sulphate	1909	Feb. 1920
Battery Zinc	1909	July 1931
Ammonium Chloride	July 1909	
—New leaded crystal (July 1928)		
Arsenate of Lead	Mar. 1910	
—Dust recovery equipment installed (Sept. 1932)		
Bordeaux Mixture	Mar. 1910	
Acetate of Lead	Mar. 1910	June 1914
Lime Sulphur Solution	Mar. 1910	
Contact "Verein"	Mar. 1910	1925
Sulphuric Acid Sys. No. 4—Zinc Kiln unit	July 1913	
—New burner installed increasing capacity from 149,000 tons to 157,200 tons/yr. (Nov. 1930)		
—Kiln dismantled (Dec. 1936)		
Arsenic Acid	Dec. 1914	
Sulphide of Soda	Nov. 1915	Feb. 1929
—Dismantled (Feb. 1934)		
Zinc Oxide	1916	Mar. 1937
—Unit No. 1 rebuilt (Jan. 1922)		
—Unit No. 2 (Mar. 1926)		
—Lead Free—began manufacture (Aug. 1930)		
Hypo Sulphite of Soda	Oct. 1916	
Sulphuric Acid Sys. No. 5—(DeSpirlet burners)	Nov. 1916	Aug. 1926
Sulphuric Acid Sys. 4&5—Chambers destroyed by fire (Sept. 1919) Resumed operations (Apr. 1920)		
Calcium Arseuate	June 1920	
Sulphuric Acid—Contact unit—Increasing capacity from 127,700 tons to 149,000 tons/yr.	Nov. 1923	
—Lurgi Kiln installed (Oct. 1934)		
Litharge	Nov. 1924	
4-All Drain Solvent	Nov. 1924	Oct. 1926
First barge-load Brimstone (Sept. 1925)		
Super Sulphate of Soda	Feb. 1925	
Phosphoric Acid	Nov. 1925	

EAST CHICAGO, INDIANA PLANT (CONT'D)

	Began Operation	Discontinued Operation
Tri Sodium Phosphate	Jan. 1926	
—Flake (Mar. 1933)		
—Monohydrate (May 1934)		
Ammonia Oxidation apparatus—(Sys. 1-2&3)	Feb. 1926	
Calcium Arsenite	June 1927	Mar. 1931
Plant Food	Jan. 1928	Oct. 1930
Manganar	Jan. 1928	July 1933
Ammonia Oxidation apparatus—(Sys. 4&5)	July 1929	
Duclean	July 1929	
Barium Fluosilicate (Dutox)	Feb. 1930	
Sulphuric Acid—Sys. 2&3—Combined (Nov. 1930)		
—Additional Sulphur Burner installed (April 1937)		
Meta Silicate	June 1931	
Detergents	June 1932	
Mono Sodium Phosphate	Aug. 1932	
Hydrofluoric Acid (Resale)	Oct. 1933	
L. C. L. Shipments—Discontinued by rail in favor of trucking (June 1934)		
Power—Entire Plant A. C. electrical load made by own generators (June 1934)		
Insecticide Dust Mixtures	Apr. 1936	
New Office and Laboratory (Oct. 1937)		

GRASSELLI, NEW JERSEY PLANT

	Began Operation	Discontinued Operation
Plant acquired	1885	
Bi Chloride of Tin—Acquired with Plant	1885	1912
Blue Vitriol—Acquired with Plant	1885	1908
Acid Phosphate—Acquired with Plant	1885	1895
—Moved to Birmingham (1901)		
Spur Track—Tremley to Plant (1888)		
Fresh Water line—Installed to Plant (1894)		
Sound shore line—Morse Creek to Plant (1895)		
Hypo—Old Department (See "Consolidation" May, 1934)	1896	May 1934 Dism. Sept. 1935
Sulphide of Soda—Rotary furnace	1897	
—Poly (Dec. 1924)		
—Flake (July 1927)		
Sulphite of Soda	1899	
Acetate of Lead	1900	
—Flake (Apr. 1930)		
—Liquor for silk dyeing industry (July 1932)		
Acetic Acid—From "Gray Lime"	1900	
—Requirements supplied by Philadelphia or purchased (Jan. 1930)		
Lithopone Sys. No. 1	1901	May 1930
Muriate of Tin	1902	
Acetate of Soda	Apr. 1903	July 1920
Phosphate of Soda	Oct. 1903	
—Duo Hydrate (Aug. 1932)		
—Anhydrous (May 1933)		
Nitric Acid—From Nitrate of Soda	1903	
—Purchased and rehandled (May 1929)		
Tri Sodium Phosphate	Apr. 1904	
Construction "Q" Contact	Apr. 1905	1923
No. 2 Power Plant	1906	1935
Muriatic Acid—Sys. 3&4—Mechanical	July 1906	
—Sys. 5 —Mechanical (Feb. 1916)		
—Sys. 6&7—Hand (Sept. 1916)		
—Discontinued (1935)		
—Sys. 3 —Bi Sulphate pot installation. Increasing capacity from 16,900 tons to 24,200 tons/yr. (Feb. 1930)		
—Sys. 4 —Rebuilt and began to use fuel oil (Sept. 1931)		
Battery Zinc	1907	
Bordeaux Mixture	Dec. 1907	June 1920
Arsenate of Lead	Dec. 1907	Feb. 1919
Lime Sulphur Solution	Oct. 1909	
Chloride of Ammonia	Mar. 1910	Dec. 1923
Ferric Sulphate	Mar. 1911	Dec. 1918
Power Plant No. 3	1911	
Silicate of Soda	1911	
—No. 3 Continuous furnace—Increasing capacity from 72,300 tons to 120,900 tons/yr. (Feb. 1930)		
Sulphuric Acid Chamber Sys. No. 4	Apr. 1911	
Barium Chloride—Old process	May 1914	Oct. 1935
—New process ($BaS+HCl$) (Oct. 1935)		
Arsenic Acid	Dec. 1914	Feb. 1919
Anhydrous Sodium Chloride	Apr. 1915	Jan. 1916

GRASSELLI, NEW JERSEY PLANT (CONT'D)

	Began Operation	Discontinued Operation
Sulphuric Acid Chambers—Sys. No. 5, 6&7	Aug. 1915	
—Acid recirculation at Sys. No. 5&6 (1936) Sys. No. 3&7 (1938)		
Anhydrous Sodium Sulphate (see "Consolidation" May, 1934)	Jan. 1917	Dec. 1935
—Requirements purchased (Dec. 1935)		
Lithopone Sys. No. 2—Tonnage transferred in July, 1930 to: Newark 3,720—Phila. 1,760—Krebs 11,780 tons per year	Jan. 1917	July 1930
Aluminum Chloride	Dec. 1921	
Sulphate of Alumina L. F.	May 1922	
Hydro Sulphide of Soda	June 1922	Feb. 1926
Sodium Silico Fluoride	Feb. 1923	
Sulphuric Acid Contact—Sys. No. 1	June 1923	
—Sys. No. 2—Increasing capacity from 98,900 to 137,200 tons/yr.	July 1923	
—Sys. No. 1&2—Installed Sulphur melting equipment (May, 1934)		
—Sys. No. 1&2—Installed waste heat boilers (Sept., 1935)		
Concrete road into Plant (June 1925)		
New Office building (Nov. 1926)		
Sulphuric Acid Contact—Sys. No. 3	Oct. 1926	
—Sys. No. 4—Increasing capacity from 137,200 tons to 186,500 tons/yr.	Sept. 1927	
—Sys. No. 3&4—Installed Sulphur melting equipment (May 1934)		
—Sys. No. 3&4—Installed waste heat boilers (Sept. 1934)		
—New Pelleted Mass installed in each Contact Unit (April 1930)		
Plant Food	Feb. 1927	Oct. 1930
Ammonia Oxidation—Sys. No. 3&4	Nov. 1927	
Zinc Sulphate Crystal	—	Dec. 1928
Ammonia Oxidation—Sys. No. 5, 6&7	Apr. 1929	
Zinc Skimmings—Roasting process for Lithopone	Dec. 1929	Sept. 1931
Anhydrous Ammonia—Conversion to Aqua	Feb. 1930	
Barytes—Received first steamer of imported material (Mar. 1930)		
Barium Sulphate—Cont. Rotary and Dorr Plant	Mar. 1930	Nov. 1930
Barium Sulphate	Nov. 1930	Mar. 1935
Barium Carbonate	Nov. 1930	Mar. 1935
Meta Silicate of Soda	June 1931	
New C. & R. Office (Jan. 1932)		
Detergents	June 1932	
Sulphuric Acid Contact—SO_3 recovery equipment for Hypo	Sept. 1932	
Chlorosulphonic Acid	May 1933	
C. P. Sulphuric	Aug. 1933	
Nitrosyl Sulphuric Acid	Sept. 1933	
C. P. Nitric	Oct. 1933	
C. P. Muriatic	Mar. 1934	
Consolidation—Glauber's, Anhydrous Sodium Sulphate and Hypo	May 1934	
Truck repair garage—placed in service (Mar. 1935)		

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PHILADELPHIA, PA., PLANT

Established in 1793 at Green Street by Mr. John Harrison of Philadelphia. Mr. Harrison was the first manufacturer of chemicals in the United States, and the Philadelphia Plant was the first manufacturing unit. Sulphuric Acid, the first product manufactured, was made by means of a lead chamber, with an output of 300 carboys per year.

	Began Operation	Discontinued Operation
Sulphuric Acid	1793	
White Lead	1806	
Sulphuric Acid—Successfully concentrated in Platinum for the first time (1814)		
Plant Site—Moved to Kensington	1831	
Plant Site—Moved to Grays Ferry Road	—	
Lactic Acid	1860	
—Edible—By Isopropyl Ether extraction No. 1 Unit (1931)		
—Isopropyl Ether Unit No. 2 (Nov. 1933)		
—U. S. P. (June 1934)		
Sulph. Contact—Rebuilt with capacity of 9,000 tons/yr.	1916	
—Revamped with capacity of 14,000 tons/yr. (1921)		
—Revamped with capacity of 21,500 tons/yr. (1925)		
Sulph. Chambers—Rebuilt with capacity of 31,000 tons/yr.	1917	
—Dismantle Bldg. No. 4 and new building erected for Sys. No. 1 (1935)		
Merger—With E. I. du Pont de Nemours & Co.	1917 →	Jan. 1929
Acetic Acid—Moved to Bldg. No. 5 operating 2 stills	1922	
—Capacity increased to 3 stills—3600 tons/yr. (1925)		
—Rehandling Niacet Acid (April 1931)		
Chromic Acid—Capacity 740 tons per year	July 1928	
—Equipment for increased capacity installed (July 1933)		
Operations—Assets and operation transferred to Grasselli with the following Depts.:	Jan. 1, 1929	

Com'l. Alum	Crystal Alums	Chromic Acid
Alumina Hydrate	Barium Chloride	Lactic Acids
Lithopone	Iron Free Alum	Acetic
Sulphuric Chbr.	Sulphuric Contact	Duclean

Formic Acid—Capacity 1500 tons per year	Apr. 1929	
—Formamide process (Jan. 1937)		
Anhydrous Ammonia Conversion	May 1930	
Lithopone—Tonnage transferred to:		
Newark—2000 tons—	—	Dec. 1930
Krebs —8000 tons per year		
Power Plants—Oil burning equipment installed (Apr. 1931)		
—Sale of power to packers (May 1931)		
Alumina Hydrate—New drier installed	May 1932	
Storm and Flood—Schuylkill River (Aug. 23, 1933)		
New Office Building (Dec. 1935)		

PAULSBORO, NEW JERSEY PLANT

	Began Operation	Discontinued Operation
Plant established—Under name of Mantua Chemical Co.	Aug. 1915	
Sulphuric Acid—3 Systems	May 1916	
—System No. 3 reconditioned, combined with Sys. No. 2 and new concentrating tower installed (July 1937)		
Merger—With E. I. du Pont de Nemours & Co.	May 1916	Nov. 1928
Nitric Acid—$NaNO_3$ process	Oct. 1916	
—Requirements purchased (Jan. 1929)		
Muriatic Acid	Oct. 1916	Dec. 1929
Strontium Nitrate	Nov. 1916	
Anhydrous Sodium Sulphate—From Strontium Nitrate Liquor	July 1923	Dec. 1925
Anhydrous Sodium Sulphate—From Salt Cake and Nitre Cake	Dec. 1925	Mar. 1931
Mixed Acid	Feb. 1926	Mar. 1929
Assets and operation transferred to Grasselli	Jan.1,1929	
Strontium Chloride—Special run of 40 tons for Central Rwy. Signal Co.	Apr. 1929	1929
Power Plant—Installation of electrical equipment to permit complete shut down	Dec. 1932	

LOCKLAND, OHIO PLANT

Plant established	1913	
Sulphuric Acid—Chamber System and Hegeler Zinc Kiln	Apr. 1913	
—Zinc Kiln dismantled (1936)		
—Chamber Acid recirculation installed (Nov. 1936)		
Muriatic Acid	Mar. 1915	
Warehouse	July 1927	
Ammonia Oxidation App.—Sulphuric Acid	Oct. 1927	
Acetic Acid—Purchased and rehandled	Sept. 1930	
Power—Plant electrification	Oct. 1935	

NEW CASTLE, PA. PLANT

Plant established	1910	
Sulphuric Acid—Chamber System No. 1 and Hegeler Zinc Kiln	Oct. 1910	
—Zinc Kiln dismantled (July 1934)		
—Trail burner installed (July 1934)		
—Trail burner—System No. 1—capacity increased 95 tons to 115 tons ore per day and acid recirculation (Aug. 1937)		
—Chamber System No. 2 and Zinc Kiln	July 1915	
—Zinc Kiln dismantled (July 1938)		
Ammonia Oxidation Apparatus—System No. 1	Jan. 1926	
Ammonia Oxidation Apparatus—System No. 2	Feb. 1926	
Anhydrous Ammonia Converstion	Jan. 1930	

	Began Operation	Discontinued Operation
CANTON, OHIO PLANT		
Plant established	1911	
Sulphuric Acid—Chamber System and Hegeler Zinc Kiln	Dec. 1911	
—Zinc Kiln dismantled (June 1935)		
Ammonia Oxidation Apparatus	Sept. 1924	
Anhydrous Ammonia Conversion	Feb. 1930	
NILES, OHIO PLANT		
Plant established	1916	
Sulphuric Acid—Chamber System and Hegeler Zinc Kiln	Dec. 1916	
—Zinc Kiln dismantled (1938)		
Ammonia Oxidation equipment	July 1929	
Anhydrous Ammonia Conversion	Feb. 1930	
TOLEDO, OHIO PLANT		
Plant established	1926	
Sulphuric Acid—Contact	July 1926	
—Contact—Extra Brimstone Burner installed and recirculation Howard coolers to reduce temperature in purification system to allow maximum burden 60,000 lbs. (Sept. 1929)		
Warehouse	1926	
Sulphuric Acid bulk tank truck shipments (Dec. 1935)		
WURTLAND, KENTUCKY PLANT		
Preliminary survey (1926)		
Plant established	1927	
Sulphuric Acid—Contact	Apr. 1927	
—Contact—Extra Brimstone Burner installed and recirculation Howard coolers to reduce temperature in purification system to allow maximum burden 60,000 lbs. (Oct. 1929)		

	Began Operation	Discontinued Operation

DETROIT, MICHIGAN PLANT

Plant established	1929	
Sulphuric Acid—Contact	Dec. 1929	

FORTVILLE, INDIANA PLANT

Plant established—Silicate of Soda	1902	
—Glass conveyor (July 1926)		

WEIRTON, WEST VIRGINIA PLANT

Plant acquired—Zinc Chloride and Black Scrap	Jan. 1925	
—New baling press (Mar. 1931)		

MEADOWBROOK, WEST VIRGINIA PLANT

Plant established	1910	
Spelter (Blocks 1–2–3&4)	1911	1930
Spelter (Blocks 5–6–7&8)	1912	1930
Spelter (Blocks 9&10)	1915	1930
Battery Zinc	1927	
Mine Lease—Leased to Maureen Coal Co.	Aug. 1928	
Vertical Retort Furnace	Aug. 1930	
Zinc Dross Furnaces	Apr. 1930	
Electric Power Generation (Sept. 1933)		
Copper Cadmium Alloy	Feb. 1934	
Sodium Zinc Alloy	Mar. 1934	
Cadmium Anodes	Jan. 1937	
Sodium Lead Alloy	Mar. 1937	

	Began Operation	Discontinued Operation

AMERICAN ZINC PRODUCTS COMPANY
GREENCASTLE, INDIANA

Plant operated under lease with American Zinc Prod. Co. (of Ohio) commencing Dec. 24, 1925.
Plant acquired by Grasselli—with Zinc Sheet—Zinc Strip—Zinc Moulding—Rolled Lead and Copper Engr. Plate operations Dec. 12, 1935

ALBANY, NEW YORK DYE WORKS

Plant acquired	Dec. 1918	Sold July 1924

BEAVER FALLS, PA. PLANT

Plant established	1883	Oct. 1931
Sulphuric Acid—Chamber System	1884	Oct. 1931
Plant dismantled	—	Oct. 1931

BIRMINGHAM, ALABAMA PLANT

Plant established	1901	June 1, 1932
Sulphuric Acid—System No. 1	1901	Mar. 22, 1928
Acid Phosphate	1901	June 1, 1932
Fertilizer Department	1901	June 1, 1932
Sulphuric Acid System No. 2	1906	Mar. 22, 1928
Lime Sulphur Solution	Dec. 1909	June 1, 1932
Sulphuric Acid Dept.—Destroyed by fire	—	Mar. 22, 1928
Silicate of Soda—Tarrant City	Apr. 1928	May 31, 1929
Plant operated as Southern Territory Warehouse	June 1, 1932	—

CLARKSBURG, WEST VIRGINIA PLANT

Plant established	1903	Sept. 1927
Spelter	July 1903	Sept. 1927
Zinc Dust	1917	Sept. 1927
Battery Zinc	July 1921	Sept. 1927

	Began Operation	Discontinued Operation
DOTHAN, ALABAMA PLANT		
Plant established with Acid Phosphate and fertilizer operations	1909	June 1, 1932
GADSDEN, ALABAMA PLANT		
Plant established with Acid Phosphate and fertilizer operations	1914	June 1, 1932
GRASSELLI, N. J. (WEST) DYE WORKS		
Plant established	Nov. 1916	Sold July 1924
HAMILTON, ONTARIO, CANADA PLANT		
Plant established	1911	Sold Dec. 1, 1928
Sulphuric—Chambers	Nov. 1911	
Lime Sulphur Solution	Jan. 1912	
—Destroyed by fire (May 1921)		May 1921
Acetic Acid	Nov. 1913	
Muriatic Acid	Dec. 1913	
Glauber's Salt	May 1914	
Nitric Acid	July 1914	
First barge load of Brimstone	Oct. 1921	
Sulphuric—Contact	Sept. 1923	
Cadmium Anodes	May 1928	
Grasselli Chemicals Company Limited capital stock acquired by E. I. du Pont de Nemours & Company in connection with merger November 30, 1928.		
Plant sold to Canadian Industries Limited	—	Dec. 1, 1928

	Began Operation	Discontinued Operation
NEWARK, NEW JERSEY PLANT		
Plant established—at Passaic Street, Newark, N. J., as Cawley Clark & Company	1878–1880	1922
Plant established—at Vanderpool Street to augment Passaic Street production capacity 960 tons per year for yellow and red pulp colors	1899	
Sodium Chromate and Bi Chromate	1899	1912
Prussiate of Potash	1900	1901
Dry Colors—Drying and grinding equipment installed	1904	1906
Lithopone	1904	1906
Fire—Destroyed entire property	1905	—
Entire plant rebuilt—Lithopone capacity 4200 tons/yr.	1906	
Sulphuric Acid—Pratt Street set—capacity 19,800 tons/yr.	1914	
Sulphuric Acid—One acid chamber collapsed. Was not rebuilt, reducing capacity to 16,200 tons/yr. (1918)		
Lithopone—Capacity increased to 10,200 tons/yr. (1915)		
—Capacity increased to 11,400 tons/yr. (1922)		
—Capacity increased to 12,000 tons/yr. (1923)		
—Capacity increased to 18,000 tons/yr. (1925)		
—Capacity increased to 21,000 tons/yr. (1928)		
Merger—With E. I. du Pont de Nemours & Company	1917	Nov. 1928
Dry Colors—Capacity increased to 1500 tons/yr. (1920)		
—Capacity increased to 1960 tons/yr. (1922)		
—Capacity increased to 2400 tons/yr. (1924)		
—Capacity increased to 3000 tons/yr. (1926)		
—Capacity increased to 3300 tons/yr. (1927)		
—Capacity increased to 3600 tons/yr. (1928)		
—Capacity increased to 3990 tons/yr. (1929)		
Passaic Street Plant—Disposed of. Production Consolidated	—	1922
Copperas	1927	
Sulphuric Acid—Ammonia Oxidation equipment installed	1927	
Ammonium Sulphate	1927	
Assets and operation transferred to Grasselli Chemical Company	Jan. 1, 1929	
Anhydrous Ammonia Conversion—equipment installed	Mar. 1930	
Plant turned over—To Krebs Pigment & Color Corporation for operation as Krebs Pigment & Color Corporation		Aug. 1931

NEWPORT, DELAWARE PLANT (KREBS PIGMENT COMPANY)		
Plant established—As Krebs Pigment Company	1901	
Lithopone—Capacity 1500 tons/yr.	1902	
—Capacity increased to 4500 tons/yr. (1907 to 1912)		
—Capacity increased to 10,000 tons/yr. (1912 to 1916)		
—Capacity increased to 30,000 tons/yr. (1916 to 1927)		
—Capacity increased to 40,000 tons/yr. (1927)		
Brass	1906	1907
Plant acquired by Grasselli	July 1930	Aug. 1931
Plant turned over—To Krebs Pigment Corp. for operation as Krebs Pigment & Color Corp.	—	Aug. 1931

	Began Operation	Discontinued Operation
SUMMITVILLE, INDIANA PLANT		
Plant acquired—From Crystal Chemical Company	July 15, 1929	Sept. 30, 1929
Plant dismantled	—	Mar. 1930
TERRE HAUTE, INDIANA PLANT AND MINE		
Plant established	1916	
Spelter	Sept. 1917	Jan. 1930
Battery Zinc	July 1925	Jan. 1930
Mine completely mechanized	Aug. 1933	
TOLEDO, OHIO PLANT (REX RESEARCH CORP.)		
Acquired—Producing Arsenate of Lead, Lime Sulphur and Oil Emulsion	Feb. 1932	Aug. 1934
Business transferred to East Chicago	—	Aug. 1934
GRASSELLI DYESTUFFS CORPORATION		
Plant established	July 1924	Sold Oct. 1928
POWDER COMPANY		
Deeds for the Cameron, American & Boston Works	Nov. 1917	Sold Nov. 1928
Seneca, Ill.—Began construction	May 1927	Sold Nov. 1928
Sold to E. I. du Pont de Nemours & Co.	—	Nov. 1928

	Began Operation	Discontinued Operation
PYRITES PROPERTIES		
Caldwell (*Lanark*) Property—(*Canadian Pyrites Ltd.*)—(*Eastern* part of Ontario)	Oct. 1917	*Nov. 1936
* Transferred to Real Estate Division (Nov. 1936)		
Arminius, Va.—(60 miles west of Richmond)—Purchased	Aug. 1918	
Holdsworth property—(Western part of Ontario)—Purchased	Nov. 1927	
ZINC ORE FIELDS		
New Market, Tenn.—Property opened	1910	
Tri State Field (Kansas, Missouri and Oklahoma)	Jan. 1925	
New Market, Tenn.	July 1925	

WAREHOUSE AND FERTILIZER MIXING PLANTS			
Selma	Rented	1908	Nov. 1920
Selma Office	Built	1908	Nov. 1920

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HISTORY OF GRASSELLI WAREHOUSES

(L)—Denotes leased Whse. (O)—Denotes Grasselli owned.

ALBANY (RENSSELAER), N. Y.	—(O)—	Established November 1922
BIRMINGHAM, ALA.	—(O)—	Operated Plant as Southern Territory Warehouse June 1932
BOSTON, MASS.	—(L)—	Established 1910
BROOKLYN, N. Y.	—(O)—	Established June 1922
CHARLOTTE, N. C.	—(L)—	Established 1930
CHICAGO, ILL.	—(O)—	Established 1903 New Warehouse buildings December 1919
CINCINNATI, OHIO		Established 1890 Discontinued—Business transferred to Lockland Works July 1927
CLEVELAND, OHIO	—(O)—	Established 1912
DETROIT, MICH.	—(O)—	Established 1905 New Warehouse buildings October 1912
GRASSELLI, N. J.	—(O)—	Established 1913
LOCKLAND, OHIO	—(O)—	Established July 1927
MONTREAL, QUEBEC, CANADA		Established 1912 Sold to—Canadian Industries Limited Dec. 1928
MILWAUKEE, WIS.	—(O)—	Established 1892 New Warehouse buildings December 1919
NEW HAVEN, CONN.	—(O)—	Established April 1912
NEW ORLEANS, LA.	—(O)—	Established 1901
PATERSON, N. J.	—(O)—	Established 1903 Discontinued Operation Aug. 1928
PHILADELPHIA, PA.	—(O)—	Established 1905
PITTSBURGH, PA.	—(L)—	Established May 1934
SODUS, N. Y.	—(O)—	Acquired from Sodus Chemical Co., December 1927
ST. LOUIS, MO.	—(O)—	Established 1887. New Office May 1935
ST. PAUL, MINN.	—(O)—	Established 1888
TORONTO, ONTARIO, CANADA		Established September 1911 Sold to Canadian Industries Limited December 1928

SUPPLEMENT 3-1-42

HISTORY OF GRASSELLI PLANTS, WAREHOUSES AND PROPERTIES

CLEVELAND, OHIO PLANT

		Began Operation	Discontinued Operation
Cadmium Sponge		Jan. 1912	
Silicate of Soda (Salt Cake Furnace)		Sept. 1916	Dec. 1920
One Rub Products		Oct. 1916	May 1917
Sodium Manganate		Nov. 1916	Feb. 1917
Insecticide - Lime Sulfur Paste		Aug. 1928	June 1929
Insecticide - Fruit Spray		Feb. 1929	May 1929
Insecticide - Smuttox		Feb. 1929	Apr. 1929
Muriatic Acid - #8-BiSulfate Pot.			Sept. 1937
Potassium Silicate Sol.	(Pioneer)	Mar. 1932	Jan. 1940
Potassium Silicate Sol.	(Plant)	Jan. 1940	
Sulfurized Quinoidine	(Pioneer)	Oct. 1932	May 1939
Sulfurized Quinoidine	(Plant)	May 1939	
Inhibitor #3	(Pioneer)	Jan. 1932	May 1939
Inhibitor #3	(Plant)	May 1939	
Inhibitor #8	(Pioneer)	Oct. 1932	May 1939
Inhibitor #8	(Plant)	May 1939	
Cadalyte Maintenance Compound		Feb. 1938	
Insecticide - Copper Compound "A"	(Pioneer)	Aug. 1936	Oct. 1940
Cadalyte Bright Dip	(Pioneer)	Mar. 1934	May 1939
Cadalyte Bright Dip	(Plant)	May 1939	
Cadalyte Dry Brightener	(Pioneer)	Mar. 1934	May 1939
Cadalyte Dry Brightener	(Plant)	May 1939	

CLEVELAND, OHIO PLANT (CONT'D)

		Began Operation	Discontinued Operation
Cadalyte Addt'l. Agent "R"	(Pioneer)	Jan. 1936	Apr. 1939
Cadalyte Addt'l. Agent "R"	(Plant)	Apr. 1939	
Sulfamic Acid	(Pioneer to N.J.)	May 1937	July 1941
Ammonium Sulfamate	(Pioneer to N.J.)	June 1937	Aug. 1941
Fire Retardant "C.M."	(Pioneer to N.J.)	Jan. 1938	Aug. 1941
Fire Retardant "T"	(Pioneer to Phila.)	Jan. 1934	Jan. 1943
Fire Retardant "R"	(Pioneer)	Jan. 1940	
Fire Retardant "#3 W.G."	(Pioneer)	Jan. 1934	
Loro	(Pioneer)	June 1934	
Lead Formate	(Pioneer)	Oct. 1936	
Phenothiazine	(Pioneer)	Jan. 1936	
Insecticide - Sticker Spreader	(Pioneer)	Apr. 1937	
IN - 930	(Pioneer)	Apr. 1938	
Zin-O-Lyte Brightener	(Pioneer)	May 1936	Jan. 1940
Zin-O-Lyte Brightener	(Plant)	Jan. 1940	
Zin-O-Lyte Salt	(Pioneer)	May 1936	Jan. 1940
Zin-O-Lyte Salt	(Plant)	Jan. 1940	
Zin-O-Lyte Addt'l. Agent "O"	(Plant)	Jan. 1940	
Ground Bi-Sulfate of Soda		Sept. 1939	
Tanning Agent G-942	(Pioneer)	Jan. 1940	July 1941
Tanning Agent G-942	(Plant)	July 1941	
Tunxten Dry Concentrates "A&B"	(Pioneer)	Feb. 1938	
Moly Black Plating Salt "A&B"	(Pioneer)	June 1939	
Insecticide - Formate	(Pioneer)	Jan. 1941	
Insecticide - Alcote	(Pioneer)	Apr. 1942	
Insecticide - Dacolyte	(Pioneer)	Nov. 1942	

CLEVELAND, OHIO PLANT (CONT'D)

		Began Operation	Discontinued Operation
Lead Sulfamate Salts	(Pioneer)	Jan. 1942	
Halogen Tin Salts	(Pioneer)	Jan. 1942	
Lead Black Salts	(Pioneer)	May 1942	
Duclean #3		Nov. 1941	
Sherardizing Zinc			Nov. 1941
Muriatic - Mech.Furnace Unit #1		Jan. 1942	
Muriatic - Semi Mech.Furnace #6			Jan. 1942
G.B.S. Soda - Originally called Metal Pickle			Sept. 1942
G.B.S. Soda - New Process		Sept. 1942	
Power Plant - New Boiler #17		Sept. 1942	

EAST CHICAGO, INDIANA PLANT

	Began Operation	Discontinued Operation
Sulfuric Acid - Chbr. Sys. #2	Before 1905	
Glattite	" 1909	Mar. 1910
Hydrofluoric Acid	Mar. 1921	Apr. 1921
Grasselli Green Arsenate	May 1926	Aug. 1926
Tri.Sod. Phos. - "P" Grade	Jan. 1930	
Duclean #2	Sept. 1931	
Insecticide Dept. - Triangle Packers	Sept. 1936	
Muriatic Acid (Syst. #9 and 10)		Dec. 1935
Muriatic Acid (Syst. #4)		Nov. 1937
Muriatic Acid (Syst. #3)		Jan. 1938
Insecticide Dust Mixtures		July 1939
Tri Soda Phos. - Flake #10	June 1939	July 1939
Tri Soda Phos. - "P" Grade #10	Aug. 1939	Sept. 1939
Zinc Ammo. Chloride	Jan. 1940	
Zinc Chloride -Chromated Dry Form	Oct. 1940	
Power Plant - High Pressure Boiler & Turbo Generator	Jan. 1941	
40% Oleum	Oct. 1941	
Sulfuric Acid System #4 & 5 - Trail Ore Burners	Apr. 1942	
Detergents - (Laundry Sours) to be made on Insecticide Dust Mix. Equip. (Jan. 1943)		

GRASSELLI, NEW JERSEY PLANT

	Began Operation	Discontinued Operation
Sulfuric Acid Chbr. Sys. #1&2 - Acquired with plant from Standard Chem. Co.	1885	
Sulfuric Acid Chbr. Sys. #3 - Acquired with plant from Standard Chem. Co.	1885	
Glauber's Salt	Before 1909	
Mixed Acid	" 1909	
Muriatic Acid 1 & 2 (Hand Syst.)	" 1909	Jan. 1927
Chlo. Zinc Sol.	" 1909	
Arsenate of Iron - Dry	June 1910	July 1910
Bone Black	June 1912	July 1912
Manganese Sulfate	Apr. 1920	May 1920
Spray Dried Silicate of Soda	Apr. 1922	May 1923
Propionic Acid	June 1928	Sept. 1928
Hydro Tan	June 1928	July 1928
Duclean #1	Sept. 1929	
Duclean #2	May 1930	
Power Plant - #41 Boiler	Apr. 1934	
Pyro-Phosphate of Soda	Oct. 1938	
Battery Zinc		Feb. 1939
Muriatic Acid - System #3		Dec. 1939
Tex Acid	Sept. 1940	Dec. 1941
Smoke Screen Mixture	Nov. 1939	
Sulfite of Soda - New Process	May 1940	
SO3 Conversion Pan to (3) Tube Still	Apr. 1940	
SO3 Conversion - Fourth Tube Still	Dec. 1941	

GRASSELLI, NEW JERSEY PLANT (CONT'D)

	Began Operation	Discontinued Operation
Sulfamic Acid	June 1941	
Ammonium Sulfate	July 1941	
Weed Killer	July 1942	
Hydro Sulfite of Soda	Jan. 1942	
Phosphate Dept. - Lurgi Filter	Sept. 1941	

PHILADELPHIA, PA. PLANT

	Began Operation		Discontinued Operation
Duclean #1		1929	
Acetic Acid - Production from Acetate of Lime			Mar. 1939
Chromic Acid - Cap'y. increased by third kettle (Feb.1939)			
Formic Acid - Cap'y. increased by third Still (Jan.1940)			
Lactic Acid - New Edible extraction column (Feb. 1942)			
Alumina Acetate	July	1942	
Alumina Formate	Aug.	1942	
Lactic Acid - Cherry Edible	Oct.	1942	
Power Plant - Reconversion to coal burning(Dec.1942)			
Fire Retardant "T"	Jan.	1943	

PAULSBORO, NEW JERSEY PLANT

	Began Operation	Discontinued Operation
Strontium Nitrate - Continuous filter (Dec.1940)		

LOCKLAND, OHIO PLANT

	Began Operation	Discontinued Operation
Duclean #2	Apr. 1932	

NEW CASTLE, PA. PLANT

	Began Operation	Discontinued Operation
Power Plant - Boilers 1,2&3 dism. and two old Cleve. Boilers 5&6 installed (Jan. 1940)		
Sulfuric Acid - Cottrell for Trail Roaster	Jan. 1941	
Sulfuric Acid - System #2		Jan. 1943

CANTON, OHIO PLANT

	Began Operation	Discontinued Operation
Duclean #1	Apr. 1937	June 1937
Plant Electrified	Dec. 1941	

NILES, OHIO PLANT

Plant Electrified	July 1942	

TOLEDO, OHIO PLANT

40% Oleum	Mar. 1942	
Sulfuric Acid-Bulk Truck Shipments		Mar. 1937

ECORSE (DETROIT), MICH. PLANT

	Began Operation	Discontinued Operation
Duolean #1	1934	
40% Oleum	May 1942	

AMERICAN ZINC PRODUCTS COMPANY
GREENCASTLE, INDIANA

Mason Jar Covers	1941	

TERRE HAUTE, INDIANA PLANT & MINE

Property Sold to W. Bledsoe		Dec. 1938

BROUGHTON, PA. PLANT

	Began Operation	Discontinued Oporation
Sulfuric Acid	Before 1909	Mar. 1918

TITUSVILLE, PA. PLANT

Cinder Agglomerator	Aug. 1910	Aug. 1912

TARRANT CITY, PA. PLANT

Silicate of Soda	Apr. 1928	May 1929

PYRITES PROPERTIES

	Began Operation	Discontinued Operation
Arminius, Va. - *Transferred to Real Estate		* Dec. 1942

ZINC ORE FIELDS

Park City, Utah - *Leased to C. I. Justheim	1903	* July 1942

GRASSELLI WAREHOUSES

Atlanta, Georgia	(O)Established July 1939
Toledo, Ohio	(O)Established July 1936

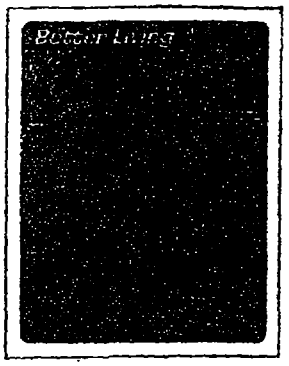
Granville – 100 Years 1866-1966

Better Living

JULY / AUG 1966

Newest product from one of Du Pont's oldest plants... PAGE 8

DU PONT IN 1966: A CANDID INVENTORY PAGE 1



THE COVER: Operator Wilbert Reiss inspects a piece of "Torvex" ceramic honeycomb, the newest in a long line of products that have been produced by Du Pont's Cleveland plant. This year the plant will celebrate its 100th birthday and the story of its century of success is told in "100 Years Young," page 8.

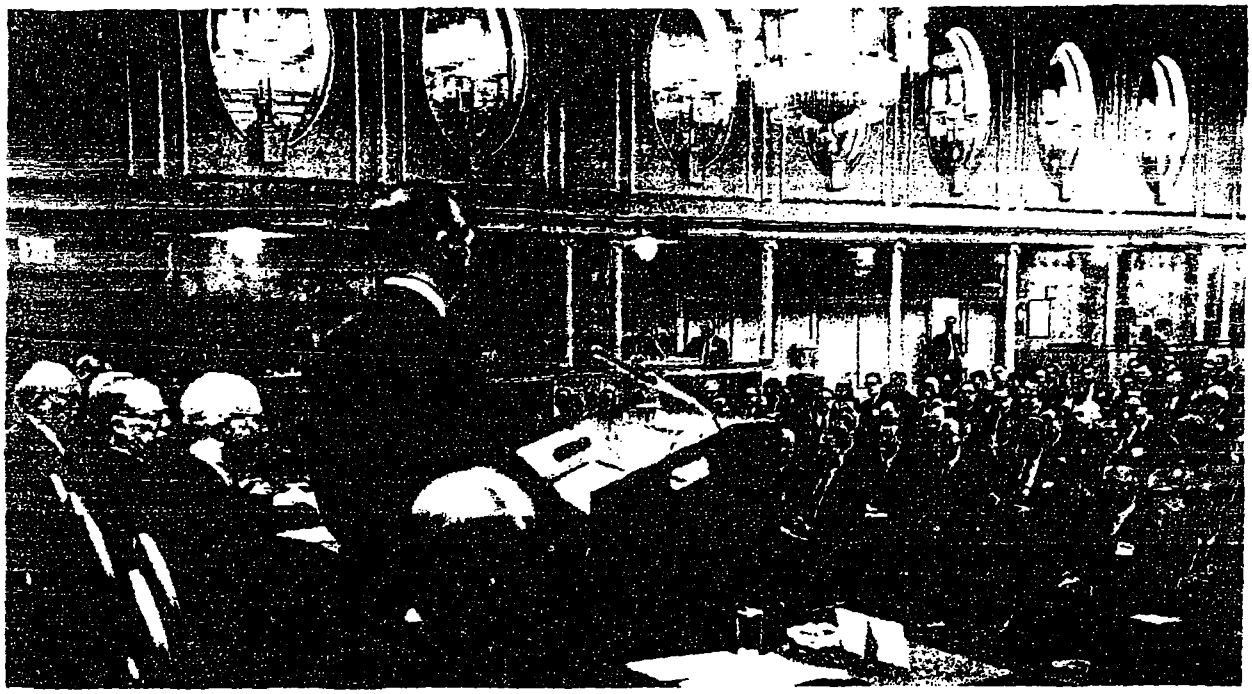
JULY-AUGUST 1966 / VOL. 20 NO. 4

Better Living

THE DU PONT EMPLOYEE MAGAZINE

IN THIS ISSUE

Address all communications to Better Living Magazine, Public Relations Dept., E. I. du Pont de Nemours & Co., Wilmington, Delaware 19898



President Lammot du Pont Copeland tells 500 of the nation's top financial analysts: "Our goal is to exceed the records we have made in the past. I see no reason why we should not achieve this." He spoke at the annual meeting of the Financial Analysts Federation.

DU PONT IN 1966:

A Candid Inventory

Six company executives give the nation's security analysts an inside look at Du Pont's world-wide operations and discuss prospects for future growth.

Du Pont has the technical competence, the financial resources and the managerial skills to continue to bring new and improved products to its customers around the world. Because of this, the company views the future with confidence and optimism.

This is the posture of Du Pont in 1966 as outlined last May 23 by President Lammot du Pont Copeland and five other company executives. They addressed the New York conference of the Financial Analysts Federation, whose members are leaders in the investment world—experts from mutual funds, banks, brokerage houses, insurance companies and other financial institutions. Their job is to appraise the securities and performances of publicly owned corporations and to advise their clients about investment possibilities.

Du Pont was one of five leading U.S. industrial firms invited to make forum presentations to the analysts and to discuss the company's problems and prospects from the investors' point of view. In addition to Mr. Copeland, the Du Pont panelists were H. Wallace Evans, Treasurer; Ford B. Draper, General Director, Marketing Divisions, Textile Fibers Department; W. Sam Carpenter, III, General Manager of the International Department; and Vice Presidents Wallace E. Gordon and Robert L. Hershey. Dr. Gordon is a former general manager of the Industrial and Biochemicals Department. Dr. Hershey, a former general manager of the Plastics Department, is executive committee adviser on research.

Mr. Copeland set the tenor of the meeting when he told the analysts, "We will try to give you as candid and complete an account of our operations as may be possible within the limits of competitive security."

The six speakers then provided the analysts with an inside view of the company's activities and prospects for growth. In essence, they described a company whose deliberate choice in reaching toward the future is to tackle the really tough jobs—the jobs that are most rewarding and profitable if you bring them off. On the following pages are highlights of the talks.

continued

Lammot du Pont Copeland

PRESIDENT

"The opportunity for the chemical industry is almost boundless simply because the chemist finds ways to make new products and materials where none existed before."

Looking at Du Pont activities from the inside and from the outside usually produces quite different impressions. The outsider takes into consideration some obvious facts: Du Pont's earnings are not, so far this year, rising in proportion to sales; the cost-price squeeze bears hard on all industry, and research breakthroughs as rewarding as nylon seem not to come along every day. He wonders, perhaps because his is a relatively short-range interest, whether these things mean that Du Pont is slowing down, that it is beginning to show its age, that it is losing its pep.

What does this picture look like from the inside? Let me tell you what I see. I see a company that is confronting many of the same problems that face all American companies today. I see a company that learns from its 164 years of experience without resting its case on history. I see a company that is dynamic, whose research is turning up promising leads, a company that does not hesitate to risk much to gain much through the development of those leads. Above all, I see a company that views the future with confidence and optimism.

In our efforts to maintain the vitality of our business, we expect to spend more than $110 million in 1966 for exploratory research to advance scientific knowledge of interest to Du Pont and for the cost of bringing new business ventures to the point of commercialization. In addition, we have forecast the expenditure of some $500 million for construction of new plants and the expansion and modernization of existing ones. Both figures are the largest in Du Pont's history and reflect our confidence in the future.

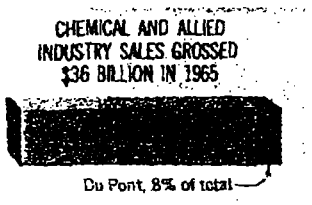
This confidence is based in part on the nature of the chemical industry. Sales of chemicals and allied products in 1965 amounted to some $36 billion, of which Du Pont had the equivalent of about eight per cent. In the last five years, the industry has grown at the rate of 8.1 per cent per year—an expansion in which we have shared.

The opportunity for the chemical industry is almost boundless simply because the chemist finds ways to make new products and new materials where none existed before.

Looking to the future, our goal is to exceed the records we have made in the past. I see no reason why we should not achieve this.

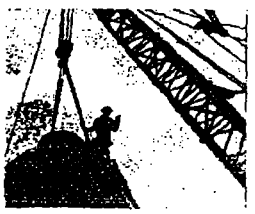
We have. I am convinced, a notably competent research and development establishment. We try, as a matter of choice, to tackle the really tough jobs, the jobs that are the most rewarding if you bring them off. We prefer to concentrate in those areas that will warrant a more satisfactory return, and we have chosen to retire from those lines, such as viscose rayon, that have become relatively static.

The degree of our success in the last analysis will depend on whether we can do a better job than the other fellow. I believe we have the creativity, the technical competence, the financial resources and the managerial excellence to continue to offer new products, with a proprietary position if possible, that will maintain satisfactory rates of return on investment.



Sales of chemical industry in 1965 totaled $36 billion; Du Pont's share is the largest of any firm in the field.

To maintain vitality, Du Pont expects to spend more than $110 million in 1966 for exploratory research and new venture development.



Du Pont's 1966 construction expenditures are expected to be a record $500 million.

H. Wallace Evans

TREASURER

"It would appear that 1966 earnings may be some four to five per cent higher than those for last year."

Our current sales position is good. We recently announced sales for the first quarter of $789 million; the highest for any quarter in the company's history and 10 per cent higher than for the same quarter last year.

We now expect that sales for 1966 may be on the order of eight to nine per cent higher than sales for last year, which were just short of the $3 billion mark.

Du Pont sales have increased each year over the past five years and for 1965 were 40 per cent higher than 1960. This represents an annual increase of about seven per cent over that five-year span. This has been particularly gratifying to us since it has been accomplished in the face of a steady decline in Du Pont selling prices. Our selling price index (based on 1957-1959 = 100) was 96 at the beginning of 1961 and was 87 at the end of 1965—nearly 10 per cent lower.

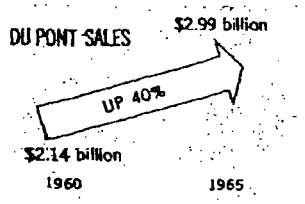
The outlook for higher earnings is not so bright as that for higher sales. Net income for the first quarter was $2.17 a share, which, despite the higher sales, was only one cent a share higher than the comparable quarter last year. We expect that earnings for the second quarter may be only slightly higher than those for the second quarter in 1965. However, we are more optimistic about the second half of the year, when additional capacity should become available. As of now, it would appear that earnings may be some four to five per cent higher than for 1965.

Our earnings have been adversely affected by lower selling prices and higher costs. The index of Du Pont selling prices has declined at a rate of one to two per cent a year for more than a decade. This reflects selling price reductions to expand markets, as well as those resulting from competitive conditions. The selling price reductions which occurred at various times during 1965 will have greater impact in 1966, because they will be effective for the full year. However, we observe some recent firming of prices for industrial products generally and hope that it will be possible to at least slow down the decline in our selling prices.

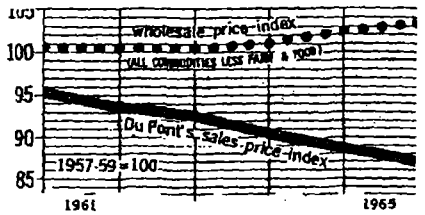
We are experiencing higher costs in two principal areas: First, there is a continuing upward trend in the level of wages and salaries and in the cost of so-called "fringe benefits" for employees. There has also been a substantial increase in social security taxes. Moreover, we recently have seen some increases in prices for raw materials. Secondly, the current heavy construction program is generating increased costs in the form of preoperating and start-up expenses to bring new facilities on stream and also in the form of higher fixed charges for depreciation.

For a number of years the company has distributed as common and preferred dividends approximately 70 per cent of net income from operations—leaving some 30 per cent for re-investment in the business. I know of no reason why this practice will not be continued.

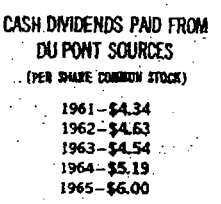
On this basis, and assuming that our net income for 1966 will be four to five per cent higher than last year, our retained earnings could be in the area of $125 million to $130 million. Our depreciation set-asides for 1966 will probably be about $255 to $260 million.



Du Pont sales increased each year over the past five years and for 1965 were 40 per cent over 1960.



Decline in Du Pont's sales price index reflects price reductions to expand markets, and reductions resulting from competitive conditions.



Du Pont dividends average about 70 per cent of net income from operations.

continued

Ford B. Draper

GENERAL DIRECTOR, MARKETING DIVISIONS, TEXTILE FIBERS DEPARTMENT

"We are in a growth industry, we have the best product line, the best technical, manufacturing and marketing know-how. We expect to remain on top."

The textile business is on the march, and Du Pont and our customers are stimulating this progress in a most important way.

Noncellulosic fibers, our sphere of concentration, grew 24 per cent a year from 1961 to 1965, while other fiber consumption increased only four per cent. Fundamentally, the reason for man-made fiber growth has been our ability to formulate fiber products tailored to the requirements of particular markets and unfilled needs. This is the real basis for success in Du Pont fibers. Natural fiber characteristics are being changed in degree, but their degree of success may be likened to repainting the barn. It is an improvement, but it is also the same old barn.

No one should think this process of tailoring our products to needs is going to stop, for we are spending more than $80 million a year in technical support of this vital source of future earnings. Noncellulosic usage is going to grow much, much faster than other fibers for many years ahead.

As we analyze our total product line for 1966, about 23 per cent of sales will be in proprietary products, another 43 per cent will be in products where we have either significant product advantage or established market position, and the remaining 34 per cent will be comparable to the better competitive items.

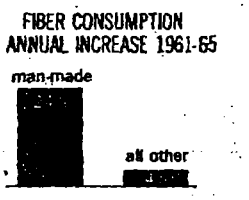
For tomorrow we have in the wings several other promising contributors to future earnings. One of these is an entirely new yarn with a much higher level of combined esthetics and performance than anything now known. We expect to be selling this product in 1968.

Another real opportunity exists in what we call the unit-function-per-dollar-cost market, chiefly industrial fabrics. We made a start in this area last year with "Reemay" spunbonded polyester. In 1967, we will have a commercial plant for "Nomex" high temperature nylon, for which major opportunities in protective clothing, industrial and electrical markets are shaping up in Europe as well as at home.

We know prices will be trending down in the future and that competitors in some areas are expanding more rapidly than Du Pont. But what's new about that? It's been going on for years. At the end of 1955 Du Pont had about 70 per cent of the capacity for noncellulosic fibers; at the end of 1965 we had about 50 per cent.

As of December, 1965 our 10-year decline in fiber prices was 19 per cent for textile yarns; 44 per cent for industrial yarns, and 34 per cent for staple fiber. Even so, on the basis of the 1965 product line, our fiber earnings before taxes were almost 30 per cent above 1955. However, this required about a 100 per cent increase in investment in new plants and equipment. Last year was an all-time record high for earnings and 1966 should be at least as good.

In the years ahead we expect both Du Pont fiber sales and earnings to increase very significantly. We are in a growth industry, we have the best product line, the best technical, manufacturing and marketing know-how, and we expect to remain on top.



Consumption of man-made fibers is increasing six times faster than that of other fibers.

Suits of "Nomex" high temperature nylon, a new Du Pont fiber, are worn by U.S. astronauts.

Vast investment in new plants and equipment allowed Du Pont to improve fiber earnings despite decline in Du Pont's fiber prices.

W. Sam Carpenter, III

GENERAL MANAGER,
INTERNATIONAL DEPARTMENT

"By 1970 we hope for a total foreign business exceeding one billion dollars annually."

The company's international activities today consist of foreign manufacture and sales in Europe, Canada, Latin America and the Far East and export sales from the U.S. On a sales basis, one-third of our total foreign business is currently done in Europe; 27 per cent in Canada; 23 per cent in Latin America and the remaining 17 per cent elsewhere. We have 31 subsidiary and affiliated companies in 19 countries and a total of 61 plants in operation or under construction. Although some of these companies are quite small, as a group they employ over 21,000 people.

It may be interesting to note that 24 of our 31 companies abroad were established in the last 10 years. These companies produce and sell a broad range of Du Pont products. In fact, products representing our 11 industrial departments are manufactured abroad.

With the postwar economic recovery overseas and, more importantly, the emergence of large trading areas such as the European Common Market and the Free Trade Area, we took a fresh look in the 1950s at our international business. It has now become one of the fastest growing activities in the company.

Last year our sales outside the U.S., including those of non-consolidated foreign affiliated companies, were $565 million and investment reached $715 million. In Europe, 1965 earnings from manufacturing activities showed an increase of 25 per cent over the previous year, in Latin America they were up 44 per cent and in Japan earnings more than doubled.

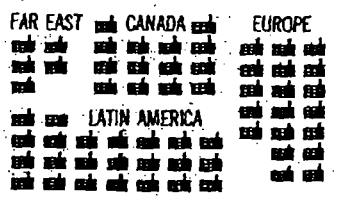
Since 1963, sales of products manufactured abroad have been growing faster than exports. Last year, they were about $350 million, more than four times higher than 10 years ago, and more than double that of 1960.

Although our export sales have more than doubled during this 10-year period, their level seems to have reached a state of equilibrium at between $200 and $250 million annually.

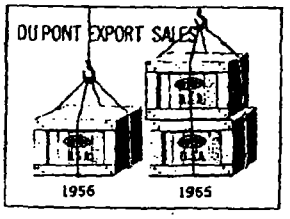
In the last 10 years, foreign operating investment increased more than four times—from $140 million to over $700 million. Of the 61 plants in operation or under construction, 47 were established in the last 10 years. Last year, for example, four new plants began operations and five plants completed expansion of existing facilities.

I might make one brief comment about East-West trade. For us it is quite small, amounting only to $5 or $6 million annually and predominantly in our synthetic rubber, neoprene. We repeatedly get requests to sell plants and processes to Iron Curtain countries, but this is not our line of business. We are manufacturers and have done very little licensing or selling of know-how since World War II and none to the Eastern European countries.

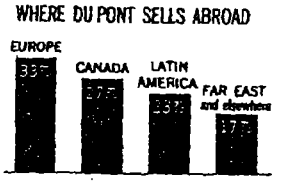
International business looms large in Du Pont's future plans. By 1970 we hope to enjoy a total foreign business exceeding $1 billion annually. At present, return on our foreign investment is running somewhat below the company average because results are being penalized by heavy start-up expenses and initial small-scale plants. Nevertheless, we expect as good a return on our foreign investment as we realize in the United States, and we see this goal as both realistic and attainable.



Du Pont's subsidiaries and affiliates outside the U.S. operate 61 plants; 47 of them were built in the past decade.



Exports from U.S. have doubled in the last decade. In 1965 sales totaled $225 million.

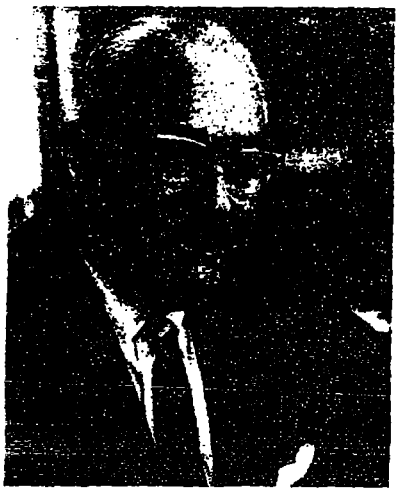


Last year Du Pont's international business totaled $565 million. Breakdown of these foreign sales is shown above.

continued

Dr. Wallace E. Gordon
VICE PRESIDENT

"Research has been the bedrock for past success and Du Pont is betting over $100 million a year that it will be for the future."



New products are Du Pont's lifeline for growth and for maintaining a strong competitive position. They are a goal of research, a challenge to marketing, and an opportunity for new investment.

Our latest product is a new plastics development called "Crofon" light guides. These are bundles of plastic fibers that transmit light any way you bend them, analagous to the way copper wires transmit electricity. They can be assembled with the wiring harness in an automobile, for example, to light several instruments from a single source. Up to now, the principle in this development, which is called fiber optics, has been applicable only in such things as expensive medical instruments and electronic equipment. When produced in commercial volume, we expect plastic fiber light guides to be economically useful in large-scale applications where cost has been prohibitive.

Of course, these are a specialty item — not to be compared with some of our new product ventures that represent investments of millions of dollars apiece—perhaps as high as $50 million or more before we can expect any return. We may have several such ventures going simultaneously, and our total effort is producing significant new products at the rate of one a month.

For the long-range health of the company, we have to maintain a good mix of new products in various stages of development. We accomplish this by growth and diversification in existing lines, by upgrading basic products and through commercial development of new scientific concepts. We are constantly on the lookout for unfilled economic needs which may be met through products of technology.

In 1965, approximately 45 per cent of total Du Pont sales resulted from additions to the company's product lines since World War II. The dollar volume amounted to over $1.3 billion.

Examples of new Du Pont products include: "Surlyn" A ionomer, a thermoplastic, clear as glass but far tougher; "Detaclad" explosion-bonded clad metals, a unique method of joining metals through precisely controlled use of explosive power; "Corian" methacrylate building products, such as acrylic resin bathroom vanity tops which look like natural marble; nylon window shutters requiring virtually no maintenance; "Corfam" poromeric material for the $400 million-a-year shoe-upper market; "Symmetrel" amantadine hydrochloride, a synthetic drug designed to fight influenza viruses, which is awaiting Food and Drug Administration approval; "Kapton" polyimide film, a transparent film which will not melt and for which there is no known solvent; and a stream of new biochemicals which are in world-wide use as weed killers, insecticides, fungicides, plant nutrients, animal health products and chemical feed ingredients for livestock and poultry.

From all I have said about new products, I want to conclude with just one main point—research has been the bedrock for past success and Du Pont is betting over $100 million a year that it will be for the future.

DuPont's explosion-bonding process produces material for new U.S. coins.

"Corfam" poromeric material took 20 years to develop. Problem now is to produce enough to satisfy the demand.

"Crofon" light guides, a new product with immediate application in the automobile industry, are bundles of plastic fibers that transmit light the same way copper wires conduct electricity.

Dr. Robert L. Hershey
VICE PRESIDENT

"In plowing new ground, we hope to find not just one or two new products; we are searching for whole new families of products."

In the past, Du Pont has grown and gained its competitive vigor by seeking to pioneer. For the future, and in the effort to maximize earnings long-range, the role of the pioneer offers us the best basis on which to make optimum use of the capital, the market experience and the wide span of human talents within our organization.

The fundamental and venturesome approach to research and development involves high risk, but it also offers better growth opportunities, long-range, than one could gain through research in more confined and perhaps more predictable areas of technology.

In plowing new ground, we hope to find not just one or two new products; we are searching for whole new families of products. We look not only for one hole in the market, but for wholly new markets where we will have basic proprietary positions, in fields broad enough to permit expanding profits from continuing development work.

Experience justifies those higher risks. Fundamental research has led us into man-made, noncellulosic fibers; into many plastic and film formulations and into a growing array of industrial and commercial photo products. It is significant that each of these areas is growing far more rapidly than the eight per cent growth rate that is the recent chemical industry average.

We recently revised our R & D classification system, setting up three categories to help us appraise with greater precision the business potential of our technical activities.

The first is labeled "Improvement of Established Business", and it includes all technical work directed to improving our competitive position. The key word here is "improvement." This is an aggressive activity, not a defensive one, and it is pointed toward one goal: to assure that Du Pont, in its established areas of business, is at least fully competitive, and wherever possible is out front.

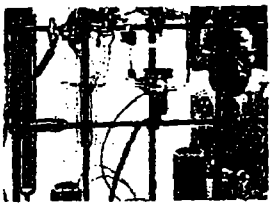
A second category is called "New Venture Development." Here the main proviso is that successful development would put us into a business we are not now in. We have about three dozen such venture projects under way.

The remainder of the total is designated "Exploratory Research." It includes all research which has not yet achieved new venture status.

One area of exploratory research involves the biosciences. Our long experience in organic chemistry gives us a platform for research in such disciplines as biochemistry and biophysics. As an example we are studying plant growth and flowering. In certain crops, farmers would like to promote flowering; in others they would like to inhibit it. Perhaps we can learn to control this to advantage. And if we knew more about plant growth, perhaps we could speed the process or increase the output of desirable products — the sugar content, for example.

None of these materials has rung the cash register yet, but their extraordinary properties make them worth a serious look, for we are commercially deep in several fields of technology which could give us a logical base for new product development from this research.

Exploratory research at Du Pont is typified by its work in the biosciences. Scientists are studying how chemicals affect yield and growth of plants.



Improvement of established products, such as pigments, is a major research activity.

New venture growing out of research is the marketing of "Teflon" heat exchangers.

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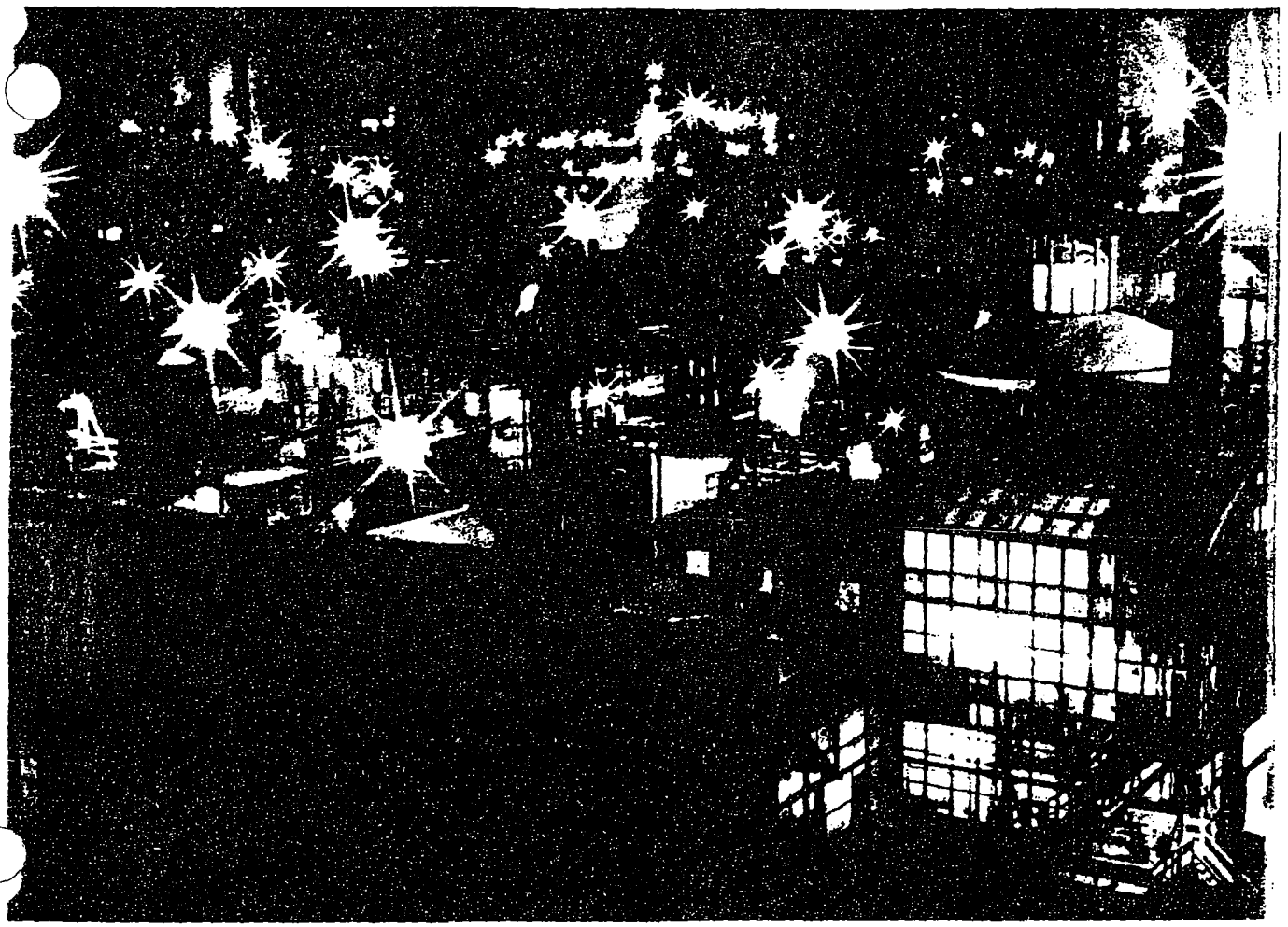
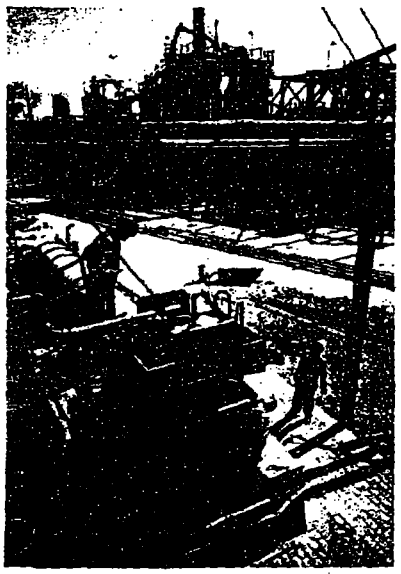




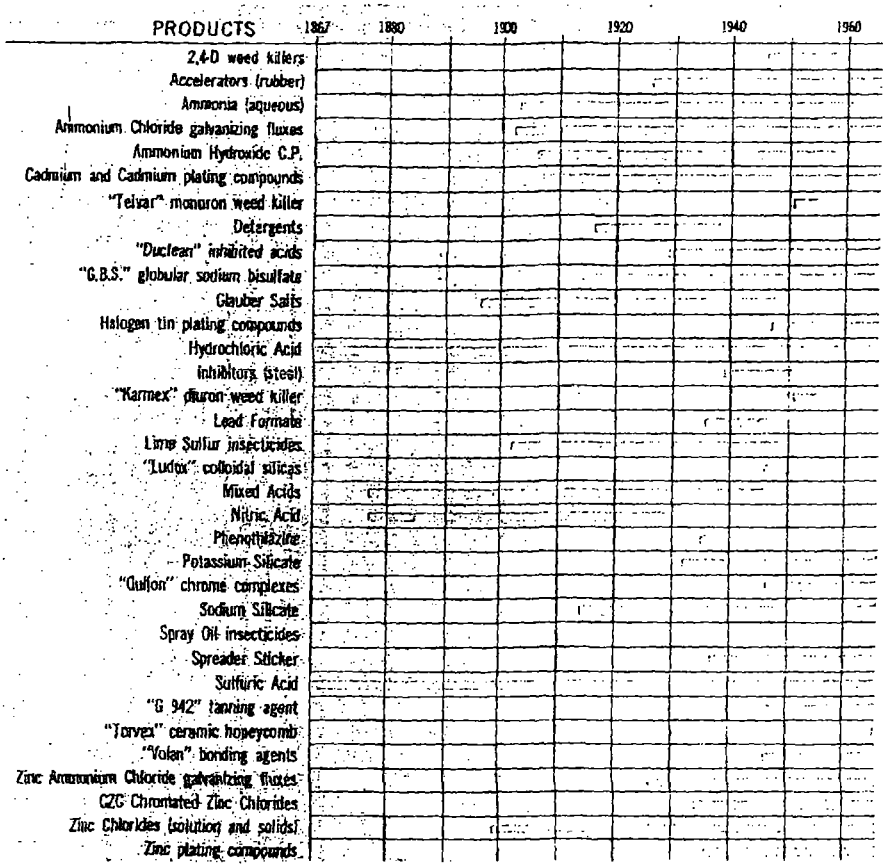
Plant's oldest product, sulfuric acid, is still the plant's leading product. It is loaded into tank truck by Driver Bill Ottinger *(on truck)* and Edward Kozey, a helper engineer. New sulfuric acid plant is in background.

100 Years Young

Du Pont's Cleveland plant survived and thrived for a

One hundred years ago, Eugene Ramiro Grasselli built a plant in Cleveland, Ohio, to supply sulfuric acid to the infant petroleum refining industry. The plant was a daring venture since the major users of sulfuric acid—soap, candle, leather and steel manufacturers—were not centered in Cleveland. Grasselli was gambling on the growth of the oil industry. Today, on its 100th birthday, the plant still produces sulfuric acid, among many other products. During these years the plant has seen customers and industries rise, prosper and fail. First to go were the candlemakers, the coachbuilders and the charcoal manufacturers; more recently, steam locomotives and stern-wheelers and many of the companies that built them passed from the scene.

How then did this Du Pont plant survive and thrive? Eugene Grasselli and managers who followed him knew that change was inevitable; when it occurred, they were ready for it. As industry grew, they quickly expanded the plant to meet new demands. As competition increased, they invested in new and modernized equipment. As new technology gave birth to new industries, they vigorously introduced new products *(see chart, top right)*, and just as



History of Cleveland products *shows how diversification and regular pruning of obsolete and unprofitable items have changed the plant's product mix. In some cases, new products were added to the plant's line to compete in new markets. In others, new products were developed to replace older ones, such as lime sulfur. And in still others, such as nitric acid, processes became obsolete and Du Pont decided to invest in newer products with greater growth potential, rather than in older ones.*

century through diversification and modernization

vigorously pruned those products that had become less profitable.

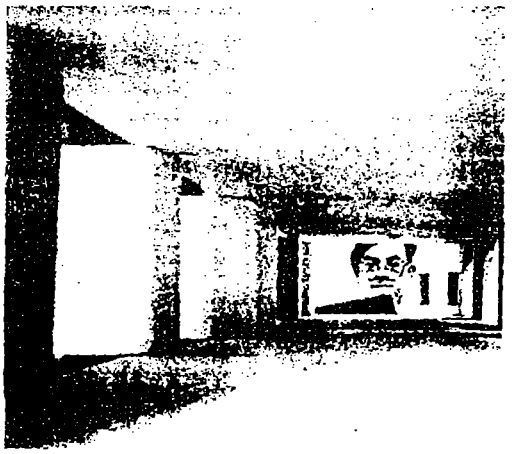
Today, the plant still serves the oil industry—its original customer—but new products are meeting the needs of customers in many other industries. Aqua ammonia, for example, was introduced in 1906 for customers in the textile, rubber and electroplating industries; potassium silicate was added in 1932 to serve the welding rod industry; "Volan" bonding agent was added in 1948 for the plastics, glass, paint and adhesive fields.

Changes in the plant and its processes have been equally profound. The sulfuric acid process was expanded four times between 1866 and 1884; in 1928 the chamber process gave way to the contact process. In 1949, an entirely new contact plant was built and in 1961 the plant was rebuilt and modernized. Almost every product produced at Cleveland is made differently today than it was just a few years ago.

This receptivity to change allowed the Grasselli Chemical Company to grow and prosper. By 1900 it was one of the leading chemical firms in the U.S. As of 1928, when Du Pont acquired the company for stock valued at $73 million, it owned 23 plants.

continued

Plant's newest product is "Torvex" ceramic honeycomb, a catalyst support, which went into production this year. Engineer Edward Spearing removes a block of the material from a firing rack.



GRASSELLI CHEMICALS

Sulfuric acid crew in 1893

Eugene Ramiro Grasselli
1810–1882

Chemistry set was a Christmas present from Eugene to his son

Packing carboys of acid in 1890

Ted Bajorek and daughter, Teddi, are one of many two- and three-generation families at Cleveland

First tank car delivered to plant in 1888

Local delivery system, 1870

Cleveland plant in 18

Sulfuric acid, the plant's oldest product, and "Torvex" ceramic honeycomb, the newest

Construction techniques; 1866–1966: stone, brick, barn board and battery and panels with Tedlar

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Du Pont and Grasselli: A long and profitable association

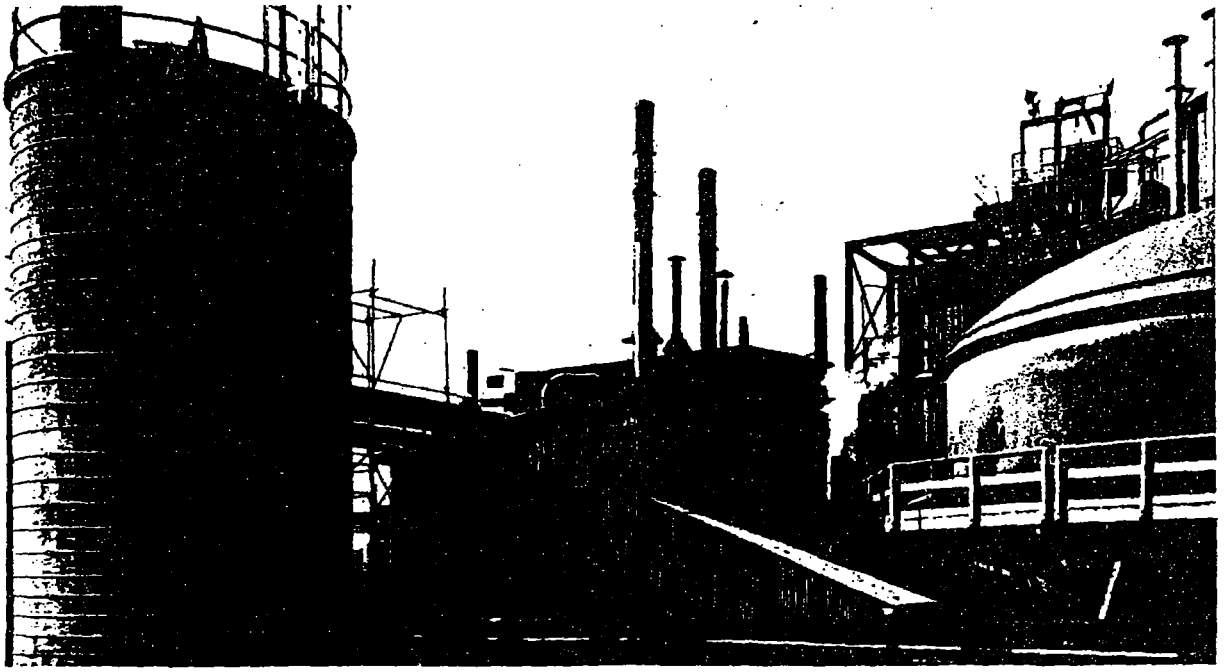
Du Pont and the Grasselli Company came together in the 1870s through the friendship of Lammot du Pont and Caesar A. Grasselli, a son of his company's founder. One thing that forged this friendship was the search for a sulfuric acid with a concentration greater than 93 per cent, then the most concentrated commercial grade available in the U.S. Grasselli told du Pont that the Cleveland plant could produce acid of at least 97 per cent concentration, and du Pont bet a box of cigars it couldn't be done. The acid was made to a concentration of 97.75 per cent, and du Pont promptly sent the cigars—"of superior quality," Grasselli recalled. Through the years, Grasselli kept the inscribed box to show to friends and associates.

Today, the plants and products of the old Grasselli organization are an important part of Du Pont's I and B Department. The art panel *(left)* shows some of the people, products and memorabilia that played a part in Cleveland's success over the years; the photographs on this page show how the plant continues to prepare for the challenges of the future.

Newer products, such as "Quilon" chrome complexes, were added as research helped develop products for new and growing markets. Richard Bryant, an operator-helper, fills drums on plant's recently modernized loading line.

New laboratory provides plant with modern methods and equipment to control quality of raw materials and finished products as they move through production processes. Ernestine Perry works at balance while *(left to right)* Phil Parker, Joseph Morrell and Fred Mendat operate equipment in background.

New expansion and modernization are currently in progress on globular bisulfate of soda unit. Shown here is some of the new equipment recently installed. Also modernized recently were the sulfuric acid, zinc chloride, sodium silicate and ammonium chloride processes.



the company physical

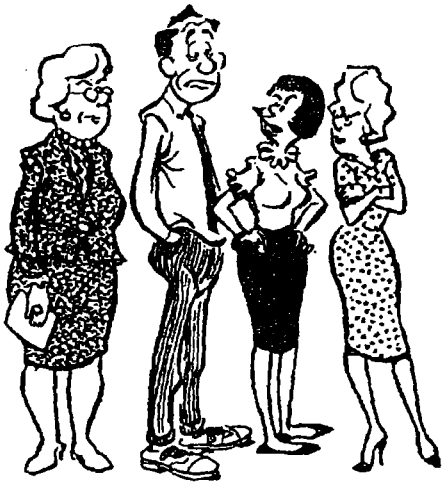
"RELAX CHARLIE...
"I'LL TELL YOU WHAT SHAPE YOU'RE IN."

Some funny things happen to Du Pont employees on the way to their physical examination.* Belts are tightened to make the middle-aged middle look a little more like muscle. Exercise, almost forgotten, gets jammed into the daily agenda. Diets are revived; desserts and double helpings are indignantly refused.

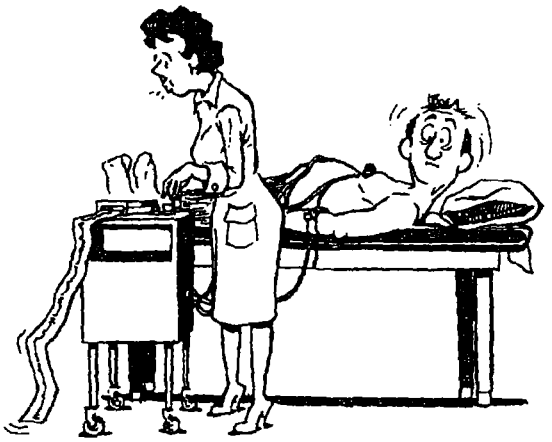
Little of this really helps. The average employee heads for Medical with varying degrees of apprehension and guilt. Artist Ned Beard of Engineering caricatures some of the give and take which occurs when the employee confronts the experienced doctor or nurse at the moment of truth.

Despite the embarrassment, the employee stands to gain from the careful inspection of his physique. When results are normal, he goes away relieved. If some unsuspected symptom is spotted, it gives him early impetus to see his family physician and zero in on some prompt treatment.

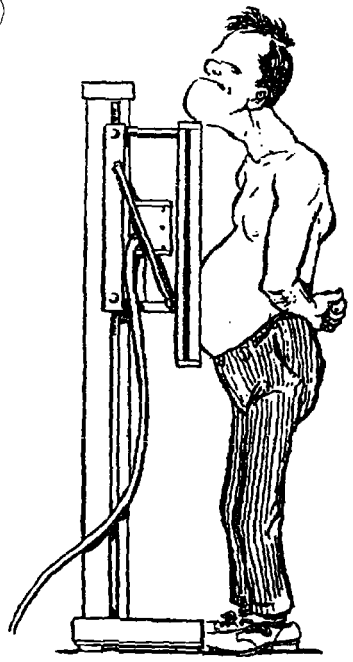
*given annually to employees aged 40 and up. Employees under 40 are examined every two years.



"THE CANCER CLINIC— WHAT LINE DID YOU THINK IT WAS?"



"TSK, TSK, TSK!"

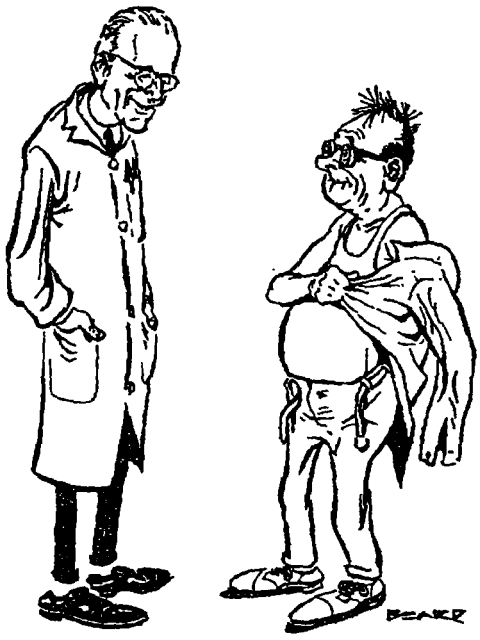


"MY CHEST IS UP AGAINST IT!"

"EVE – LUCY – WILL ONE OF YOU BRING THE SMELLING SALTS?"

"WOULD IT MAKE YOU FEEL BETTER IF YOU SHUT YOUR EYES ..??"

"YEAH? WELL SUPPOSE YOU TELL ME HOW SOMEBODY CAN BE SLIGHTLY OBESE!"



"WELL ---- WE MADE IT ANOTHER YEAR, DIDN'T WE?"

Something more

Throughout Du Pont there are thousands of employees who are committed to enriching and improving their communities. Typical of this large group are the Louisville Works employees shown on these pages; they are deeply involved at all levels in a variety of activities—from problems of poverty to problems of education. That's why it seems surprising that some social critics have tried to popularize the image of the industrial employee in a large corporation as one who spends all day at his job and all night in front of the TV with a beer in his hand. This image just doesn't fit the vast number of Du Pont men and women who, quietly and without great fanfare, find genuine satisfaction through active involvement in community life.

State government. Bustle of law-making surrounds Walter S. Reichert, laboratory technician at Louisville Works, as he talks with a page on the floor of the Kentucky State Senate in Frankfort. Reichert served in the State House of Representatives in 1964 and was elected state senator last year. Two other Louisville employees served in the House during the 1966 session: Louis Ballenger, methods engineer, and Charles Jones, a plant buyer.

than beer and tv

War on poverty. William Shumake is pastor of one of two churches in which the Newburgh Day Care Center was established by the Office of Economic Opportunity. He and the director of teachers, Mary McGavock, talk with children at the center, which has been used as a model for similar anti-poverty projects across the country. Shumake, a plant truck driver, acted as chairman and is now on the board of directors.

Urban growth. As a member of the League of Women Voters in New Albany, Ind., Mrs. Mildred Wilson studied zoning problems arising from construction of a new highway through the city. Last winter she was busy looking over highway blueprints with Charles Walte, Jr., director of the New Albany-Floyd County Planning Commission, which received the League's endorsement as a result of Mildred's study. Technical librarian at Louisville Works, she has worked in the League several years and is first vice president.

continued

Something more

continued

Local government. Edward Mason, sergeant of the plant guard, has served seven years as mayor of West Point, near Louisville. In addition to overseeing city services, he takes on jobs such as preparing West Point's application for an Atomic Energy Commission facility, which he is explaining to Mrs. Gladys Stackhouse, police judge.

Scouting. Joe Baker (*right*), chief chemical operator, inspects winter damage to an Adirondack shelter at a Boy Scout camp. Baker was prime mover behind construction of the camp, built on land belonging to Gene Vance (*left*), safety director for the National Carbide plant in Louisville. A scoutmaster for 13 years, Baker recently was given the Silver Beaver Award, highest honor bestowed by the Boy Scout Council.

Public safety. Vernice Van Meter uses his training as a sergeant of the fire department at Louisville Works when he answers a call as a volunteer of the Dixie Suburban Fire Department. He and his neighbors formed the volunteer department to hold insurance rates down.

Arts in the community. Stanley Crump *(right)*, foreman in the CD area, is business manager of the Clarksville, Ind., Little Theater. On the set of "O Dad, Poor Dad, Mama's Hung You In The Closet and I'm Feelin' So Sad," he shows invoices to advertising executive Cy Webber, the director.

Inter-racial projects. As a member of the Louisville Urban League board, Howard Hansen *(left)* has a part in such activities as job development and educational assistance. With Mrs. Elsie Ahrens Lang, treasurer, and Charles Steele, executive director, he helps plan a membership drive. Secretary is Mrs. La Dean Foree. Hansen is plant service superintendent.

Youth development. Edward Bohannon, maintenance mechanic, coaches and referees in the Optimist Club basketball league at Fern Creek High School. He is a past president and director of the Fern Creek Optimist Club, also works on the Optimists' oratorical contest, conducts a softball clinic and is active in the Boy Scouts.

Aid to education. Paul Stamp *(center)* serves the mayor's office by distributing to schools and colleges scientific equipment contributed by local industry. Examining a filter from a donated spectrophotometer are Prof. Gordon Williams, head of the chemical engineering department at Speed Technical School, and Ronald Howard, senior at Speed, who has been a co-op student with Du Pont. Stamp is engineer in charge of overtime administration.

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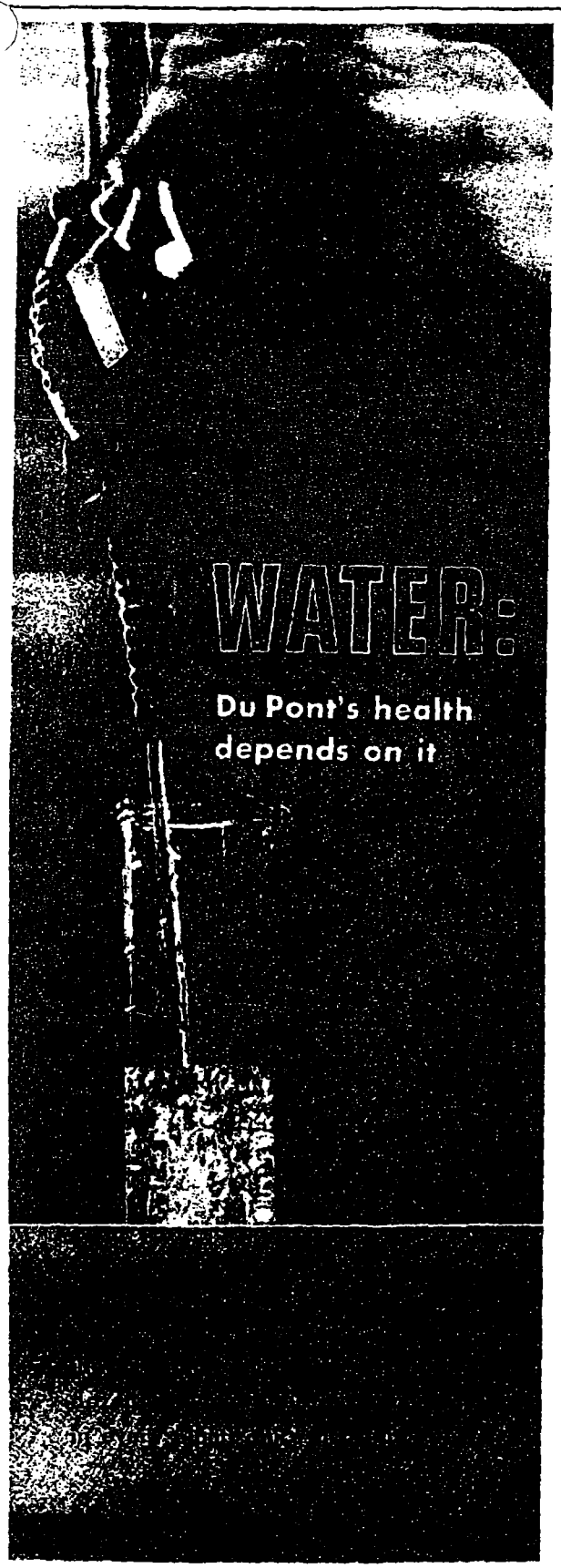
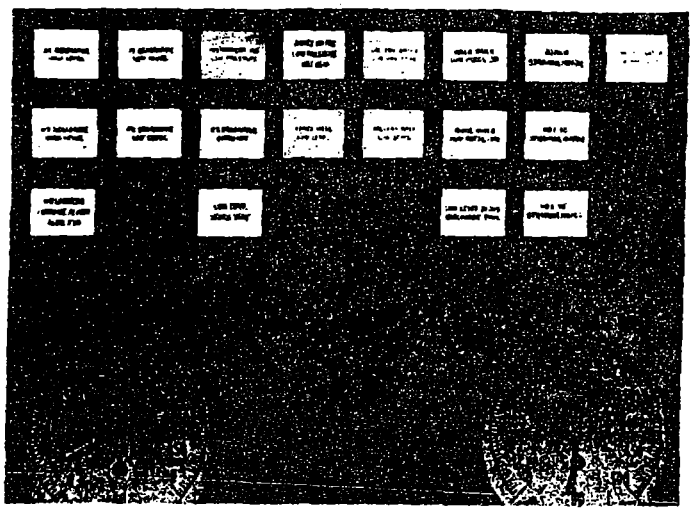
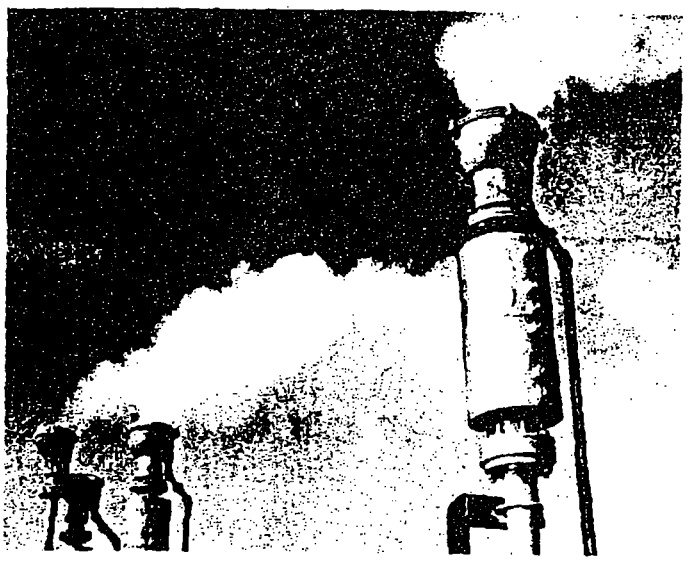




Water supply at Washington Works is monitored by panelboard containing sensitive instruments which control and measure water flow from river, wells.

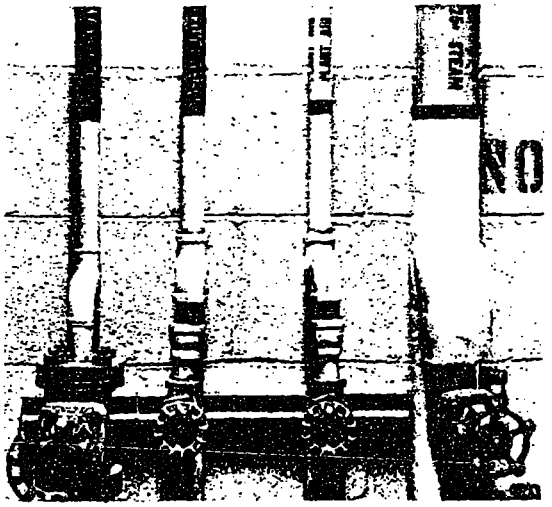
Eye baths, located in strategic areas of the plant and laboratories, provide clean water to guard against eye damage caused by chemical splashes or spills.



Steam is freed into the air after plant use. At Washington Works, water in the form of steam is used for distillation, heating, drying, liquefaction of solids.

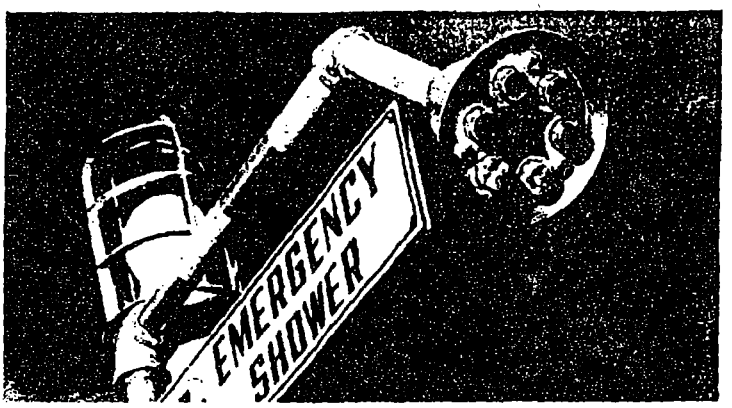
Fire sprinklers located throughout plant are activated by heat.

Domestic water meets standards for drinking, cafeteria and plant sanitation.

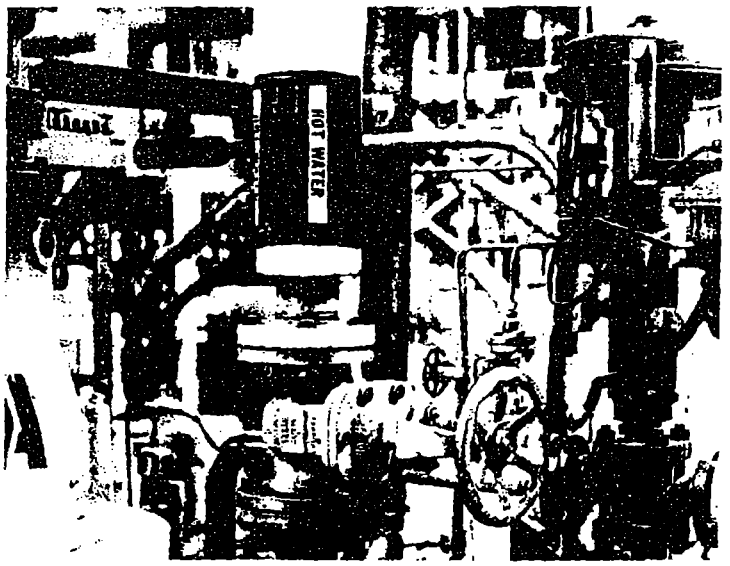


Cluster of water pipes indicates special types of water needed in an operation. Each receives different treatment.

Drinking water is provided in fountains and in cafeteria. The taste, odor and sterility must be strictly controlled.



Emergency showers are located in areas where corrosive liquids are used. Severe skin burns can be prevented by immediate dilution of the liquids by stream of water.



Manufacturing operations in which water becomes a part of the product account for less than five per cent of the total amount of water used by the company.

continued

The Ohio River and wells on plant site are the sources of Washington Works water. To insure adequate and continuing supply of water, plant recently purchased Blennerhassett Island upstream, and it will drill four wells there.

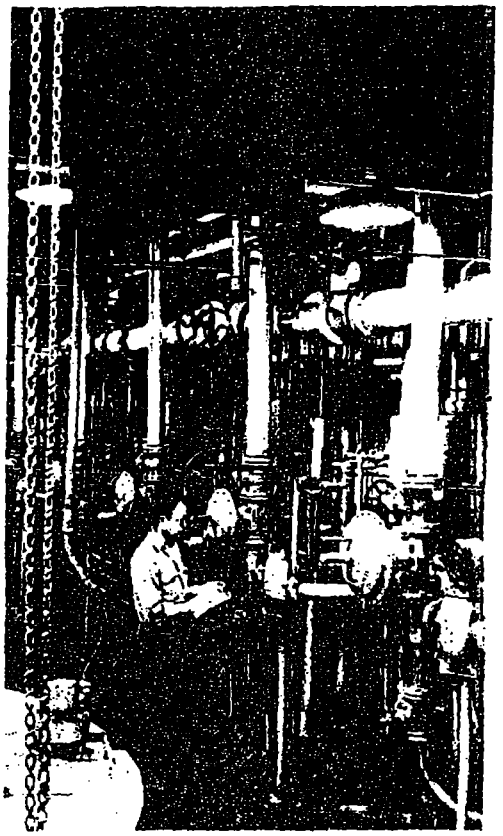
Water is continually treated and checked as it moves through the company's plants and processes

As much as any individual or community, Du Pont has a stake in maintaining a clean, adequate water supply. Du Pont facilities across the country use 1.2 billion gallons of water each day—three times as much as the city of Philadelphia. Maintaining a supply at that volume calls for strict conservation practices, and for constant improvement in facilities that use or treat water.

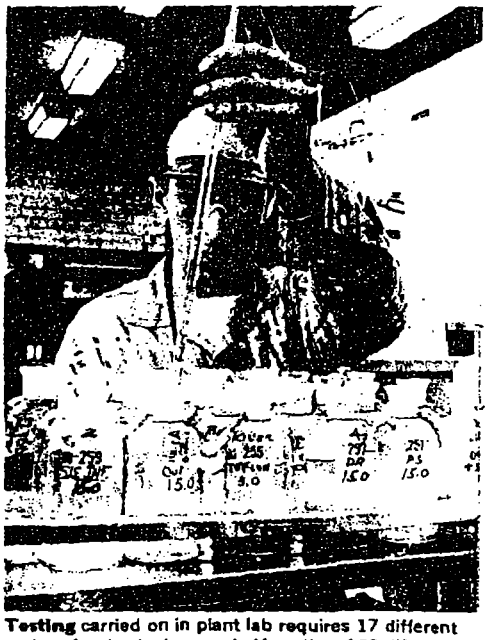
Du Pont finds that some form of treatment is inevitably required wherever it uses water. Water piped to steam boilers must be treated to avoid deposits of calcium and magnesium. Textile fibers plants require water of extreme softness — softer than drinking water — to wash impurities from fibers.

The search for new ways to save water goes on all the time. Water re-use is especially important and, in many cases, the company squeezes multiple uses from each molecule before the water goes back to the stream. For instance, a gallon of water may first be used for low temperature cooling — water temperature at 70-100 degrees Fahrenheit —then pumped to the boiler room to become steam, cooled to make distilled water, often reused and then returned to streams for further use by other companies.

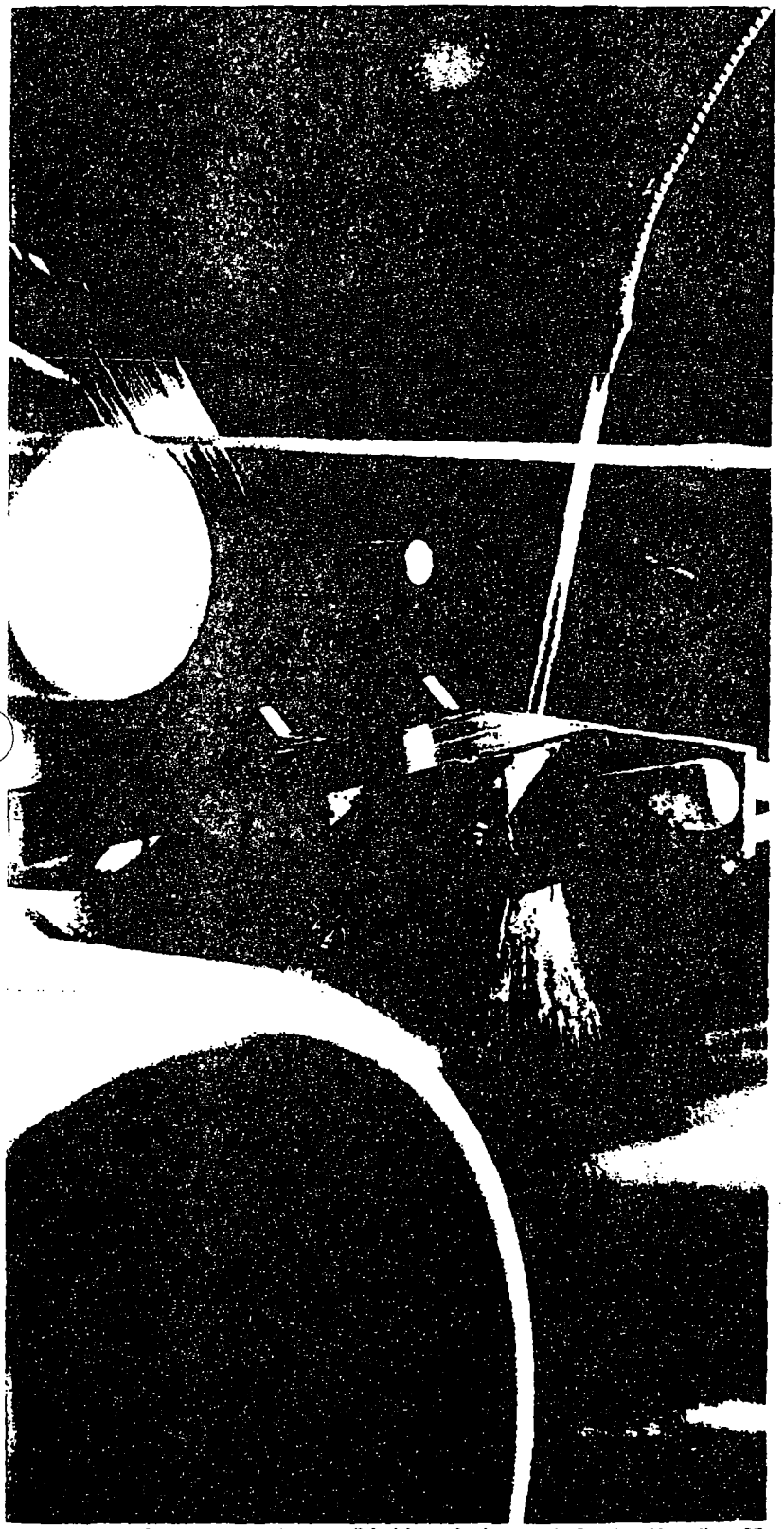
At the Plastics Department's Washington Works near Parkersburg, W. Va., where these photographs were taken, 26,000 gallons of water flow every minute into dozens of activities, some of which are shown here. The Ohio River provides 80 per cent of the flow, with the remainder pumped from three well systems. River water is used mainly for cooling plastics manufacturing equipment. The bulk of well water goes for process and special cooling problems.



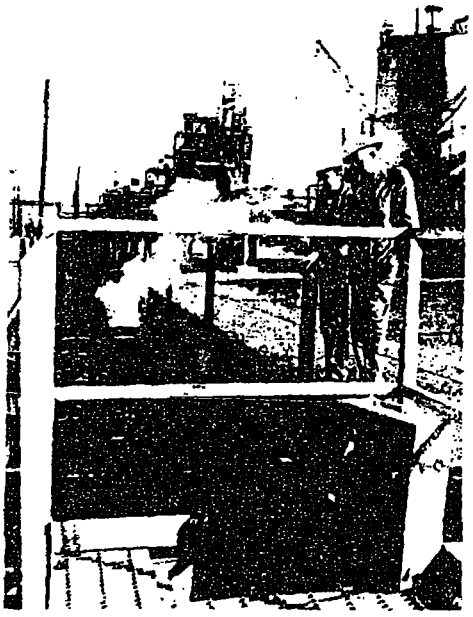
Water is tailored in the powerhouse for Du Pont's special needs. Ken Roberts, water treatment operator, is checking the flow rate through a demineralizer which provides soft water for use throughout the plant.



Testing carried on in plant lab requires 17 different series of water tests a week. More than 100 different chemical analyses are carried on by Robert Nelson, laboratorian, who is preparing plant samples for tests.



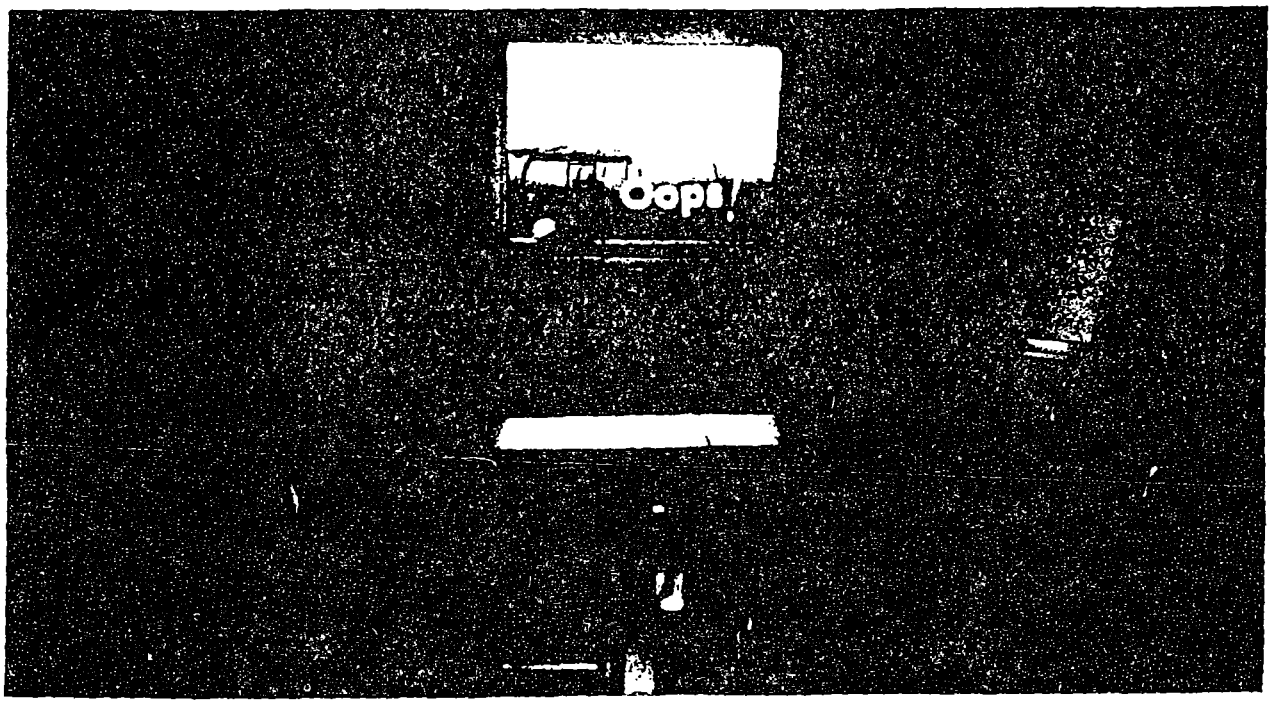
Manufacture of products requires small but important amount of water. More than 95 per cent of the water used at Du Pont is in the non-consumption category and is used many times by Du Pont and others. Here, a stream of water is used to cool "Tynex" nylon filaments.



Cooling water flows back to the river through ditches encircling production areas. Laboratorian Robert Nelson and Superintendent Seth Savage inspect water little changed except for temperature.

Return of water to the Ohio is preceded by inspection and treatment where necessary to meet local and federal regulations. Plant is one of several industrial plants in the immediate area making use of river water.

continued



WATER continued

At Du Pont, Water Conservation Is Everybody's Business

The Washington Works employees pictured above are engaged in a water conservation effort—one of dozens carried out at the plant and throughout Du Pont. They are watching a film entitled "Oops!" made by the Ohio River Valley Water Sanitation Commission (ORSANCO). The film is being shown to everyone at the plant to stress the role individuals must take in water conservation.

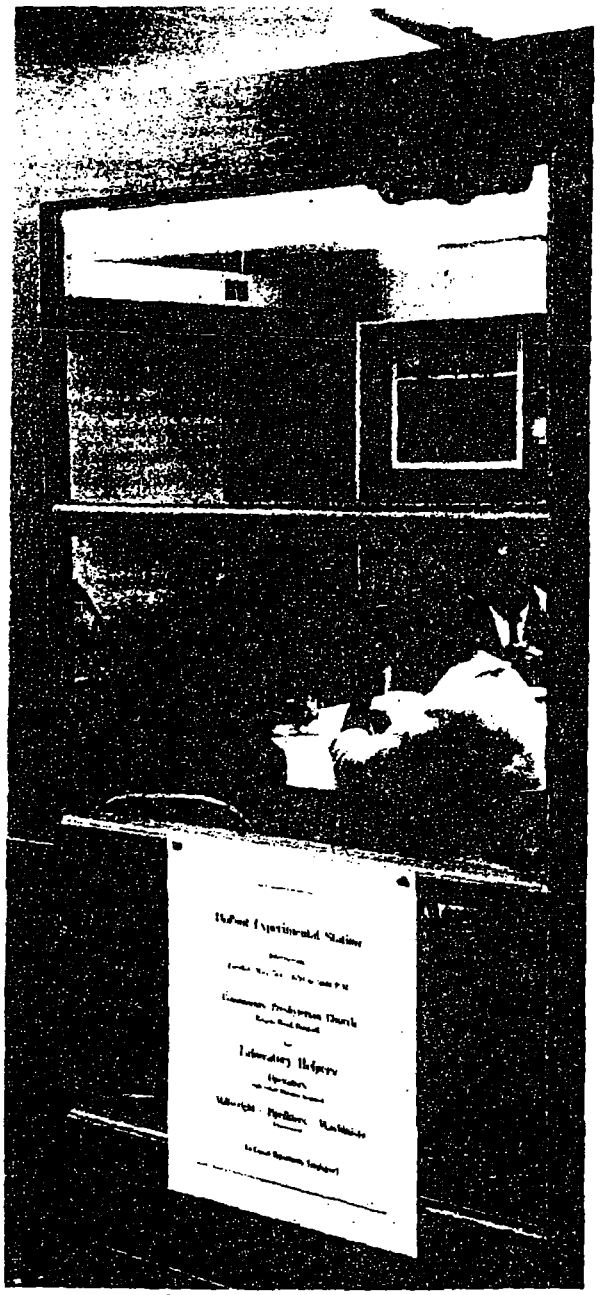
Du Pont employees have long had an interest in water conservation at the company. They understood the part water played in the operation of the powder mills on the Brandywine Creek. They saw this interest heightened in 1903 when the old Light, Heat, and Power Division (forerunner of today's Engineering Services Division) was set up to study systems for supply of steam and clean water. Water concern in the company was made even more formal by the Executive Committee's 1938 statement stressing the importance of pollution control activities within the company.

Today, as has been the case for many years, no Du Pont plant is built unless (1) a workable method of waste disposal is incorporated in the plans; and (2) there is an ample supply of water available for the present and future.

By saving water and helping others who are trying to maintain clean streams, Du Pont works toward a larger water supply for all. In Texas, three Du Pont locations have switched partially to air-cooled systems, thus releasing 181,000 gallons of water per minute for other uses. At Chambers Works in New Jersey, strict conservation measures produced a 33 per cent savings in water use last year. Other plants in the drought-stricken Northeast are using brackish water wherever it is possible.

But conservation is not enough. Du Pont works with federal, state and interstate agencies such as ORSANCO to maintain the cleanliness of water. Samples of water are tested in laboratories, reports are made to conservation agencies regarding sightings of river pollution or practices which might lead to pollution, and records are kept on the condition of streams at all times. Several Du Pont plants, among them the Memphis and Louisville operations, have received awards for their work in pollution abatement, and all plants have men on their payrolls to carry on this work. Last October, Robert Rocheleau of the Engineering Department, and Folger Taylor of the Waynesboro, Va., plant were honored by the Water Pollution Control Federation for their work on waste control. However, to these Du Ponters honors are only the by-products of the main business: a clean and plentiful supply of water for everyone.

END



Temporary employment offices in facilities of community organizations have been set up by personnel group at Du Pont's Experimental Station in order to reach potential job candidates who cannot come to the company's regular employment offices during daytime hours. Recruiters have visited a YMCA, two community centers, and two churches in Negro communities in and around Wilmington. Job applicants (*above*) were among those who came to Community Presbyterian Church for evening interviews.

Affirmative Action Reinforces Plan for Progress

Throughout Du Pont, affirmative action is being taken to make members of minority groups better aware of employment opportunities at Du Pont and to provide employees already on the payroll with opportunities to demonstrate their potential for advancement. Efforts include special recruiting programs, high school visits, plant tours, training programs and other activities that, in many cases, go beyond the provisions of the national Plans for Progress program and government laws and regulations.

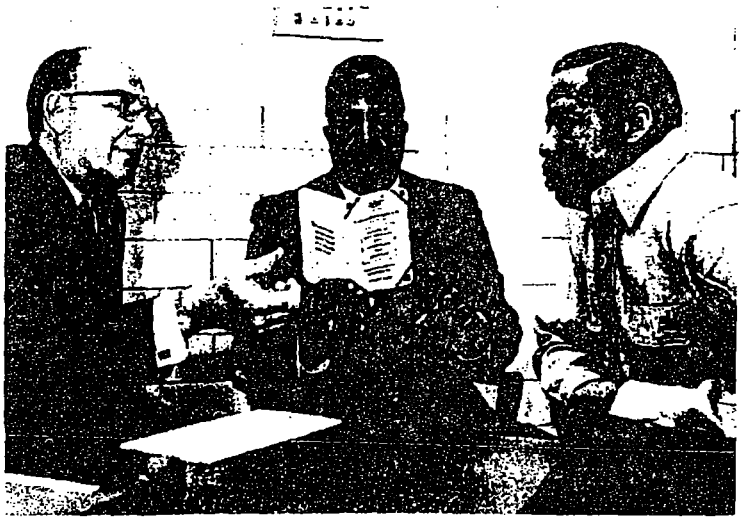
One program is illustrative. Recruiters from the Experimental Station are taking job information directly into neighborhoods where minority populations are concentrated. Since last September these representatives (*left*) have gone as frequently as two nights a week into churches, YMCA and community centers to conduct employment interviews. Advance publicity by means of paid newspaper and radio announcements has helped attract 400 applicants thus far, half of whom are non-white. Of these, about 75 met preliminary qualifications and 12 were hired as laboratory helpers, chemical operators, key punch helpers, stenographers, clerk typists and tabulating machine operators.

Similar programs are going on elsewhere in the company. Du Pont plant people are visiting nearby schools with high Negro registration to tell students about skills needed by Du Pont, and to encourage students to complete their education. Others consult with organizations, such as the Work Experience Youth Program in Toledo, Ohio, to provide help and guidance for young people interested in industrial careers.

These programs helped raise non-white employment at Du Pont from 4250 in 1965 to 5344 early in 1966, but affirmative actions do not end with recruitment. Procedures have been established to make sure that non-white employees now working in Du Pont plants, laboratories and offices have equal opportunities to learn new skills and to demonstrate potential for advancement. Pictures on these pages illustrate some of the positive actions which are taking place to make certain that Du Pont's progress will continue.

continued

Training present employees helps many to qualify for better jobs. Howard Nichols, first class mechanic in General Services Department in Wilmington, is checked by Foreman James Irvine on rewiring project. Study at vocational high school, coupled with training, helped Nichols move from window washing to his present job.



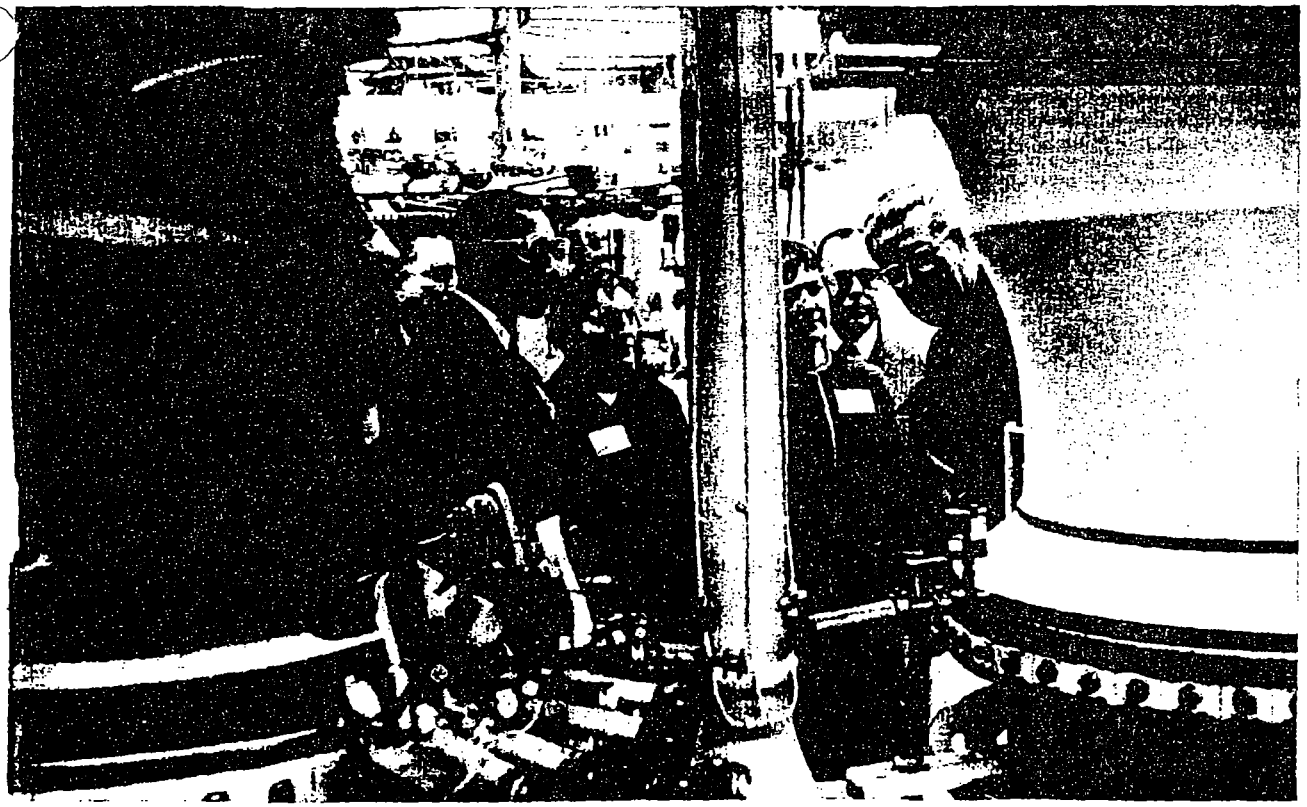
Cooperating with community organizations helps in recruitment of qualified Negroes. Du Pont Personnel Manager Charles Kransberger (*left*) of Chicago Finishes plant discusses the progress made by employee Clarence Johnson (*right*) with Edward Woods, project director for Urban League, who referred Johnson to Du Pont.

Affirmative Action *continued*

Recruiting efforts include expansion of the program of interviewing students at predominantly Negro colleges. Employee Relations Placement Representative Ruffin Noisette (*seated*), visited Pennsylvania's Cheyney State College. Here he is introduced to a student class by Dr. Wade Wilson, director of Industrial Arts.

Working with local government groups helps to publicize employment opportunities. At Parkersburg, W.Va., plant officials hosted members of Human Rights Commission established by Mayor Dean Jackson (*standing, left*). Tour demonstrated qualifications needed on chemical plant. Others include Charles Anderson, assistant plant manager, the Reverend Preston Smith, Attendance Officer Clifford Martin, and Employee Relations Superintendent Charles Friedman. Operators are Ray Cox (*front*) and Carl Brumm.

Informing teachers of skills needed by Du Pont helps schools prepare students for industrial jobs. Each year, Du Pont's Employee Relations Department invites school teachers and guidance counselors from northern Delaware to tour plants and laboratories to see the kinds of jobs industry can provide. Group visiting Textile Sales Service laboratory at Chestnut Run included teachers (*front row, from left*) Leander Howell, Jeannette Worntz, Elinor Short. Explaining knitting operation is Warren Davis, finishing engineer.



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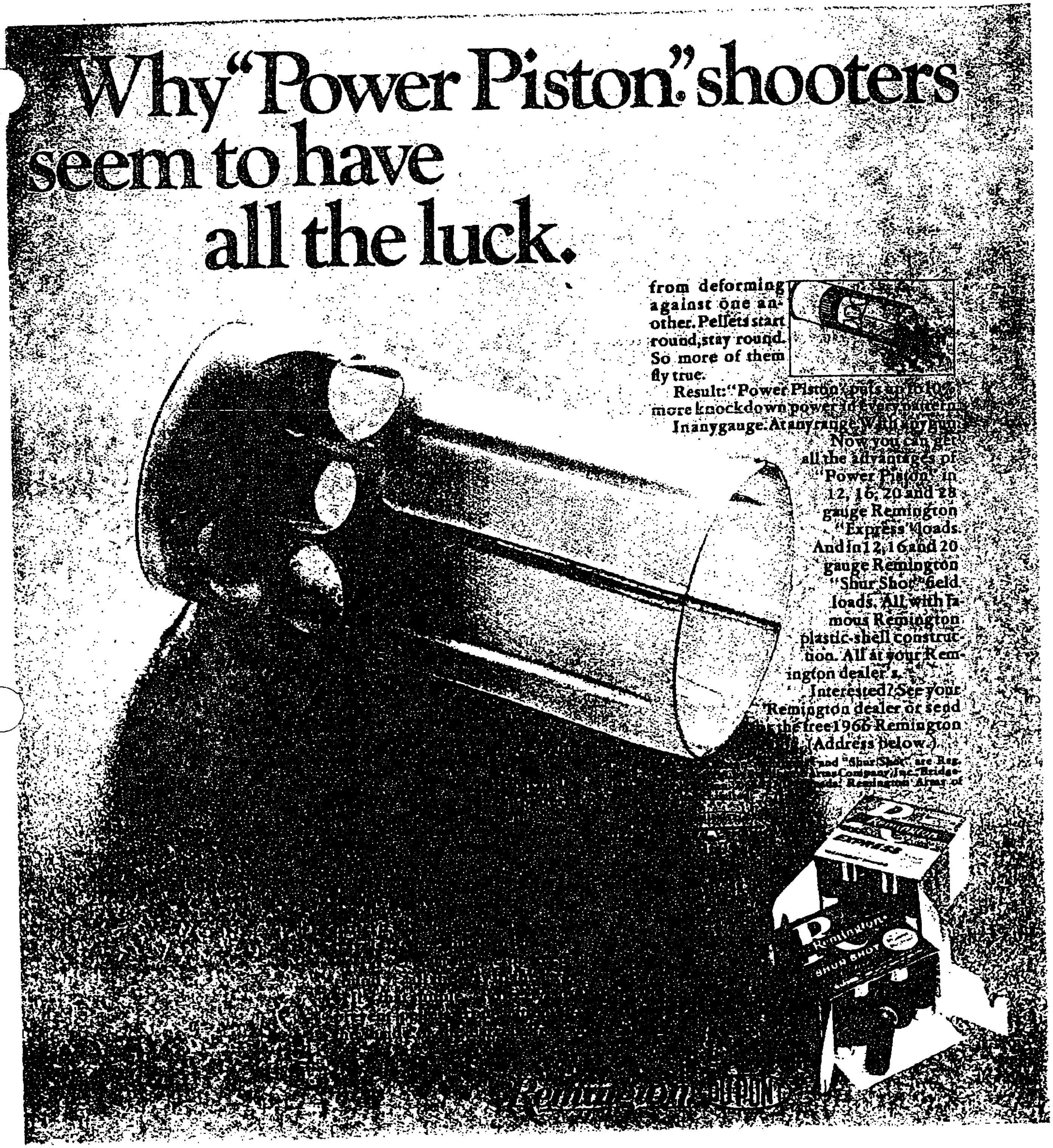
Why "Power Piston" shooters seem to have all the luck.
from deforming against one another. Pellets start round, stay round. So more of them fly true.
Now you can get all the advantages of "Power Piston" in 12, 16, 20 and 28 gauge Remington "Express" loads. And in 12, 16 and 20 gauge Remington "Shur Shot" field loads. All with famous Remington plastic-shell construction. All at your Remington dealer's.
Interested? See your Remington dealer or send the free 1966 Remington (Address below.)
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EXHIBIT 7

C
DA CUNHA v. GRASSELLI CHEMICAL CO.
D.C.N.J. 1942.

District Court, D. New Jersey.
DA CUNHA
v.
GRASSELLI CHEMICAL CO. et al.
Civil Action No. 2230.

July 30, 1942.

Action by Antonio Da Cunha against **Grasselli Chemical Company** and E. I. Du Pont De Nemours & Company, its **successor**, to recover for personal injuries sustained by plaintiff while in employ of defendants, wherein the defendants appeared specially. On motion to strike the summons and complaint, as amended, and to dismiss the suit, on the ground of improper venue.

Motion denied.

West Headnotes

[1] Federal Courts 170B ⇐95

170B Federal Courts
170BII Venue
170BII(A) In General
170Bk95 k. Objections, Waiver and Consent. Most Cited Cases
(Formerly 106k276)

The statute providing that a civil suit in district court shall be brought only in district of the residence of either the plaintiff or the defendant where jurisdiction is founded on diversity of citizenship, merely accords to the defendant a personal privilege respecting the "venue," or place of suit, which he may assert or may waive at his election. 28 U.S.C.A. §§ 1391, 1401, 1693, 1695.

[2] Federal Courts 170B ⇐80

170B Federal Courts
170BII Venue
170BII(A) In General
170Bk77 Corporations, Actions by or Against
170Bk80 k. Effect of State Laws. Most Cited Cases
(Formerly 106k274(13))

A foreign corporation's designation of an agent for service of process in conformity with New Jersey statute constituted "consent" to be sued in a federal court for that state, and was tantamount to a "waiver" of the privilege accorded by statute providing that a civil suit in District Court shall be brought only in district of residence of either plaintiff or defendant where jurisdiction is founded on diversity of citizenship. 28 U.S.C.A. §§ 1391, 1401, 1693, 1695; N.J.S.A. 14:15-3.

[3] Federal Courts 170B ⇐80

170B Federal Courts
170BII Venue
170BII(A) In General
170Bk77 Corporations, Actions by or Against
170Bk80 k. Effect of State Laws. Most Cited Cases
(Formerly 106k274(13))

An alien, bringing action in Federal District Court under provision of Judicial Code granting District Courts original jurisdiction where matter in controversy is between citizens of a state and foreign states, citizens or subjects, could rely upon a foreign corporation's designation of an agent for service of process in conformity with the law of a state as constituting "consent" to be sued in a federal court for that state the same as a citizen of such state. 28 U.S.C.A. §§ 1331 et seq., 1391, 1401, 1693, 1695.

*29 Mario Turtur, of Elizabeth, N.J., for plaintiff.
Pitney, Hardin & Ward, of Newark, N.J., for defendants.

MEANEY, District Judge.

In this action the defendants, appearing specially, have moved to strike the complaint, as amended, on the ground of improper venue.

EXHIBIT 7

The plaintiff, as appears from the amended complaint and from admissions made at the argument of this motion, is a citizen of Portugal, residing in New Jersey, who sues for personal injuries sustained while in employ of defendants. The defendant, **Grasselli Chemical Company**, was formerly a Delaware corporation, authorized to do business in New Jersey, by compliance with New Jersey Revised Statutes 14:15-3, N.J.S.A. 14:15-3, etc. This company has been duly dissolved and the other defendant, E. I. Du Pont De Nemours and Company, has succeeded to its rights and liabilities. The Du Pont Company is incorporated under the laws of Delaware and by similar compliance with New Jersey Statutes was authorized to do business in New Jersey.

[1] The defendants' contention is based upon the language of Section 51 of the Judicial Code, 28 U.S.C.A. § 112, which contains the following provision: ' * * * no civil suit shall be brought in any district court against any person by any original process or proceeding in any other district than that whereof he is an inhabitant; but where the jurisdiction is founded only on the fact that the action is between citizens of different States, suit shall be brought only in the district of the residence of either the plaintiff or the defendant.' The object of this part of the code is to serve the reasonable convenience of the defendant, and is a personal privilege, and unless waived, would require that the action be instituted in the District of Delaware. That it may be waived would appear definite. General Invest. Co. v. Lake Shore & M.S.R. Co., 260 U.S. 261, 43 S.Ct. 106, 67 L.Ed. 244; Lee v. Chesapeake & O.R. Co., 260 U.S. 653, 43 S.Ct. 230, 67 L.Ed. 443; Commercial Casualty Ins. Co. v. Consolidated Stone Co., 278 U.S. 177, 179; 49 S.Ct. 98, 73 L.Ed. 252.

[2] The plaintiff contends that the defendants have waived this feature of convenience and have voluntarily consented to be sued in the District of New Jersey by applying for the right to transact business in the State of New Jersey under the authority of New Jersey R.S. 14:15-3, N.J.S.A. 14:15-3, etc., and by assuming the liabilities attendant upon authorization so to do. The pertinent portions of the New Jersey Statute, N.J.R.S. 14:4-2, N.J.S.A. 14:4-2, and N.J.R.S. 14:15-3, N.J.S.A. 14:15-3, provide that 'every corporation of this state, and every foreign corporation authorized to transact business in this state, shall maintain a principal office in this state and an agent in charge thereof upon whom process against the corporation may be served ', and that 'every foreign corporation, except banking, insurance, ferry and railroad corporations, before transacting any business in this state, shall file in the office of the secretary of state * * * a statement * * * setting forth (among other things): * * * c. The principal office of the corporation in this state and the name and place of abode of an agent upon whom process against such corporation may be served * * * .'

While not so broad as the statutes in some other states, the New Jersey Statute makes it clearly evident that, preliminary to authorization to transact business in New Jersey, is the appointment of an agent in charge of the principal office of the corporation in the State, upon whom process against the corporation may be served. There is no qualification upon this obligation.

The United States Supreme Court in the case of Neirbo v. Bethlehem Shipbuilding Corp., 308 U.S. 165, 60 S.Ct. 153, 84 L.Ed. 167, 128 A.L.R. 1437, decided that designation of an agent in a state for service of process constituted consent to be sued in the federal courts of that state, and is tantamount to a waiver of the privilege accorded by Section 51 above referred to. Previous to that decision, various districts decided the question variously. The Neirbo case is dispositive.

[3] The defendants would distinguish the instant case from the Neirbo case, on the ground that the plaintiff in the former is an alien, while the plaintiff in the latter was a citizen. There would seem to be no merit in this contention. District Courts have original jurisdiction where the matter*30 in controversy is between citizens of a State and Foreign States, citizens or subjects. 28 U.S.C.A., § 41(1)(c). There could be no question of the

jurisdiction of the District Court of the District of Delaware were the suit instituted there, and under the authority of the Neirbo case, which does not limit the nature of the consent to be sued, to suits instituted by citizens, but is of general application, the United States District Court for the District of New Jersey has jurisdiction under the circumstances which exist in this case. Such a view of the Neirbo case may be deduced from the decision in Beard v. Continental Oil Co., D.C. 1941, 42 F.Supp. 310.

The motion to strike the summons and complaint, and dismiss the suit, is denied.

D.C.N.J. 1942.
Da Cunha v. Grasselli Chemical Co.
46 F.Supp. 28

END OF DOCUMENT

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TAB 2

7824

7824

ARTICLES OF INCORPORATION

OF

T & GRASSELLI CHEMICAL COMPANY.

We, whose names are hereto subscribed, do by this agreement associate ourselves with the intention of forming a corporation according to the provisions of the laws of the State of Utah, and we do hereby agree as follows:

I.

The name by which the corporation shall be known is

THE GRASSELLI CHEMICAL COMPANY.

II.

The City where it is organized is Park City, Utah.

III.

The names of the incorporators and their places of residence are as follows:

Caesar A. Grasselli,	2275 East 55th St.	Cleveland, O.
Daniel Bailey,	2111 East 55th St.	Cleveland, O.
Eugene L. Grasselli,	2061 East 79th St.	Cleveland, O.
Thomas S. Grasselli,	11605 Euclid Ave.,	Cleveland, O.
H. H. MacMillan,		Salt Lake City, Utah.
Eugene R. Bailey,	2111 East 55th St.	Cleveland, O.

IV.

The time of the duration of this corporation shall be one hundred years.

V.

The purposes for which the corporation is formed and the business to be transacted by it are as follows:-

The manufacture of chemicals, and doing [illegible] in the manufacture and sale of chemicals, and all branches of business growing out of or connected with the manufacture and sale

f chemicals, including the development and production of minerals, oils and gas, and for the purpose of transporting and disposing of the same; and for the purchasing and holding such real estate as shall be necessary to carry into effect the subjects and purposes of the incorporation aforesaid.

VI.

The place of its general business shall be Park City, Utah.

VII.

The amount of stock each party has subscribed is as follows:

Caesar A. Grasselli,	$4000.00
Daniel Bailey,	2000.00
Eugene A. Grasselli,	2000.00
Chas. S. Grasselli,	2000.00
Eugene M. Bailey,	1900.00
H. R. MacMillan,	100.00

VIII.

The total amount of its capital stock to be authorized is $10,000.00.

The par value of its shares is, common, $100.00

The number of its shares is, common, 100.

IX.

The officers of this corporation shall be:

a. A board of directors consisting of six members;

b. A resident;

c. A vice-president;

d. A secretary;

e. A treasurer.

No person shall be elected to fill an office in said corporation who is not recorded on the books of the corporation as being the owner of one or more shares of the capital stock thereof.

The directors shall by ballot elect from among their

number, at their first meeting after the annual election, a president, vice-president, secretary and treasurer. The directors and officers chosen by them shall hold office for the period of one year from the time of their election and until their successors shall be elected and qualified. The election of the directors shall be by ballot at the annual meeting of the stockholders on the second Tuesday of January of each year. Any officer of the corporation may be removed at a meeting of the stockholders called for that purpose by a majority vote of the stock represented at such meeting, providing a quorum be represented. Any officer of this corporation may resign by filing his resignation in writing with the secretary, and the same shall become effective by the acceptance thereof at any meeting of the board of directors upon a majority vote. Any vacancy in the offices of this corporation caused through removal, resignation, death or otherwise, may be filled by election at the meeting removing the officer holding such office or at any regular meeting of the board of directors, or at a special meeting called for that purpose.

The officers of this corporation to serve until the first general election are as follows, to-wit:

Caesar A. Grasselli, Daniel Bailey, Eugene E. Bailey, Eugene R. Grasselli, Thomas D. Grasselli and . . . MacMillan, directors; Caesar A. Grasselli, President; Daniel Bailey, Vice-President; Eugene E. Bailey, Secretary; and Eugene R. Grasselli, Treasurer.

".

Four directors shall be necessary to form a quorum and be authorized to transact business and exercise the corporate powers of the corporation.

XI.

The private property of the stockholders shall not be liable for its obligations.

IN WITNESS WHEREOF we have hereunto set our hands this 2[illegible] day of *June*, in the year 190[illegible].

[illegible signatures]

State of Ohio.)
: ss
Cuyahoga County.)

On this 2[illegible] day of *June*, A. D. 190[illegible], personally appeared before me, a Notary [illegible] in and for said County, the above named [illegible] R. Grasselli, Th[illegible] Grasselli and [illegible] Bailey, three of the persons whose names are subscribed to the foregoing articles of agreement, who being duly sworn, on oath say that the persons mentioned in the foregoing agreement have commenced the business mentioned in said agreement and that they verily believe that each party to the agreement has paid [illegible] stock subscribed for by him, and that at least ten per cent of the stock subscribed by each stockholder and not less than ten per cent of the capital stock of the corporation has been paid in.

[illegible signatures]

Subscribed and sworn to before me this 2[illegible] day of [illegible], 190[illegible].

[illegible signature]
Notary Public.

(Seal)

My commission expires [illegible]

State of Utah, } ss.
County of Summit.

I, J.M.Hixson, County Clerk in and for the County of Summit, State of Utah, do hereby certify that the foregoing is a full, true and correct copy of the Articles of Agreement of the "The Grasselli Chemical Company "

and oath or affirmation of the Incorporators; And I further certify that the said corporation has duly filed in my office the Agreement of Incorporation, together with the oath or affirmation of the Incorporators and oath of office of each officer, as required by Chapter 1 of Title 11, Revised Statutes of Utah, as amended by Chapter 81 of the Laws of Utah, 1901.

In Witness Whereof, I have hereunto set my hand and affixed my official seal this 30 th day of June 1909.

J.M.Hixson
County Clerk.

By [illegible]
Deputy Clerk.

Articles of Incorporation

of

"THE GRASSELLI CHEMICAL COMPANY"

.....

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TAB 3

Entry No. 74369.

LEASE AND OPTION

THIS AGREEMENT, made and entered into this 1st day of July, 1942, by and between E.I. du Pont de Nemours and Company, a corporation organized and existing under the laws of the State of Delaware, of Wilmington, Delaware, First Party, and CLARENCE I. JUSTHEIM, of Salt Lake City, Utah, Second Party.

W I T N E S S E T H :

THAT, for and in consideration of the mutual covenants and agreements hereinafter set forth and agreed to be kept and performed by the respective parties hereto, and for and in consideration of the rentals and royalties hereinafter mentioned, the said First Party does hereby let and lease to Second Party the lands hereinafter described, situated in Summit County, State of Utah, to be used by the Second Party herein for the purpose of prospecting, exploring, developing, mining and milling mineral ores therein contained, to-wit:

The South Half of the Northeast Quarter (S½ of NE¼ of Section Nine (9); the North Half of the North West Quarter (N½ of NW¼) of Section Ten (10); also Lot Twelve (12) containing 5.26 acres, more or less, Section Ten (10), Township 2 South, of Range 4 East, Salt Lake Base and Meridian; containing in all about 165-26/100 acres;

and also

Commencing at a point 160 feet south of the northeast corner of Section Nine (9), Township 2 South, Range 4 East of the Salt Lake Base and Meridian, said point being in the center of the old Utah Central Railroad grade, and running thence South along the East line of said Section 2160 feet to the southeast corner of the Northeast Quarter of the Northeast Quarter (NE¼ of NE¼) of said Section Nine (9); thence west along the south line of said Northeast Quarter of the Northeast Quarter (NE¼ of NE¼) of said Section Nine (9) 745 feet, thence North 1169-½ feet to the center of said Utah Central grade; thence east along the center of said grade, 745 feet to the place of beginning, containing 20 acres;

TO HAVE AND TO HOLD unto said Second Party, his heirs, and assigns, for a period of seven (7) years from the date hereof, unless sooner terminated by the failure of the SecondParty to perform any or all of the terms and conditions herein contained.

The Second Party agrees to pay to said First Party, its successors or assigns, and the First Party agrees to accept from the said Second Party as rental for the above described lands the following sums:

10% of a value of all ores or metals mined from said property up to and including $25.00 per net ton of 2000#;

12½% of a value of all ores and metals mined from said property of a value of over $25.00 and up to and up to and including $40.00 per net ton of 2000#;

15% of a value of all ores or metals mined from said property of a value of over $40.00 and up to and including $75.00 per net ton of 2000#

20% of a value of all ores and metals mined from said property over $75.00 per net ton of 2000#

The "value" shall be the net smelter returns received by the Second Party, F.O.B. cars Park City, Utah, from the sale of all minerals, ores, concentrates and metals produced on and shipped from said lands and said rentals or royalties payments shall be made on or before the 15th day of the month following the monthsin which such ores or metals were shipped.

It is especially agreed and understood that, beginning with the date hereof, a minium annual rental at the rate of Thirty-six Hundred Dollars ($2600.00) shall become effective, payable in monthly installments of Three Hundred Dollars ($300.00) each, the installment due for each month to be payable on or before the 15th day of the month following, the installment for the month of July, 1942, being payable on or before the 15th day of August, 1942.

For the purpose of verifying rental payments as agreed, said First Party, its successors and assigns, shall have through its duly appointed representatives access to the books of said Second Party at all reasonable times.

The second Party agrees to begin investigation of the property by such means as seem best on or before the 1st day of July, 1942, and beginning the 1st day of October, 1942, agrees to perform an average of 50 shifts of eight (8) hours per shift per month. Said Second Party agrees to do all work in a workmanlike manner and to suitable timber shafts and other openings, when necessary.

The said First Party, its successors and assigns, shall at all reasonable times have access to the mining property and to all operations thereon for the purpose of inspecting operations and all work done by said Second Party and upon demand shall be entitled to receive maps showing all workings on said properties.

It is specifically understood and agreed that the vertical planes bounding the side and end lines of the property shall define the limit of the ownership of all ore bodies and that the law of the apex shall not apply or be invoked.

The said Second Party for himself, his heirs and assigns, agrees to protect said First Party, its successors and assigns, against all liens for labor or material and said property shall at all times be kept free and clear from liens occasioned by said Second Party, his heirs and assigns, and said Second Party for himself, his heirs and assigns, further agrees to indemnify and save harmless the First Party, its successors and assigns, against all claims, loss or liability for injury or death to any person or damage to any property arising or resulting from the operations of Second Party, his heirs and assigns, upon said premises hereunder.

Entry No. 74544.

FOR and IN CONSIDERATION of the sum of Five Dollars ($5.00), cash in hand paid by CLARENCE I. JUSTHEIM, of Salt Lake City, Utah, her in termed First Party to E.I. duPont de Nemours and Company, a corporation of the State of Delaware, of Wilmington, Delaware, herein termed Second Party, receipt of which is hereby acknowledged by Second Party, Second Party does hereby give and grant to First Party, his heirs and assigns, the right and option to purchase from Second Party for the price hereinafter stipulated all the right and title of Second Party to the following described land situated in Summit County, State of Utah, to-wit:

The South of the Northeast Quarter (S½ of NE¼) of Section Nine (9); the North Half of the Northwest Quarter (N½ of NW¼) of Section Ten (10); also Lot Twelve (12) containing 5.26 acres, more or less. Section Ten (10), Township 2 South, of Range 4 East, Salt Lake Base and Meridian; containing in all about 165-26/100 acres;

and Also

Commencing at a point 160 feet south of the northeast corner of Section Nine (9), Township 2 South, Range 4 East of Salt Lake Base and Meridian, said point being in the center of the old Utah Central Railroad grade, and running thence south along the east line of said Section, 1160 feet to the southeast corner of the Northeast Quarter of the Northeast Quarter (NE¼ of NE¼) of said Section Nine (9); thence west along the south line of said Northeast Quarter of the Northeast Quarter (NE ¼ of NE¼) of said Section Nine (9) 745 feet; thence North 1169-½ feet to the center of said Utah Central grade; thence east along the center of said grade 745 feet to the place of Beginning, containing 20 acres.

within the period beginning with the date hereof and terminating at the expiration, or other termination as therein provided, of that certain lease agreement between the parties hereto dated July 1, 1942, wherein said property is leased to First Party for the purpose of prospecting, exploring, developing, mining and milling the mineral ores therein contained, provided at the time of the exercise of said option First Party shall not be in default under the terms and conditions of said lease.

The purchase price shall be Twenty-five Thousand Dollars ($25,000.00) in cash, less any rentals or royalties paid by First Party to Second Party under the terms of said lease of July 1, 1942.

Upon the payment by First Party, his heirs or assigns, to Second Party, its successors or assigns, of the said purchase price provided there is no default under the terms and conditions of said lease, said Second Party, its successors or assigns, shall execute and deliver to said First Party, his heirs or assigns, a deed or transfer of all such rights or title as Second Party may possess in and to all said property herein described, whereupon this agreement shall become null and void and of no effect.

If First Party shall elect to purchase said property, he shall signify such election by written notice thereof addressed to Second Party in care of its Real Estate Division, 1007 Market Street, Wilmington 98, Delaware, and such notice shall be deemed delivered to Second Party when deposited in any United States Post Office in a postpaid, registered envelope or in any telegraph office prepaid for transmittal as aforesaid to Second Party.

The within agreement shall supersede and cancel that certain option agreement entered into between the parties hereto, dated August 22, 1945, and the option granted to First Party herein in the said lease agreement dated July 1, 1942.

IN WITNESS WHEREOF, the said parties have hereunto set their hands in duplicate this 30 day of March, 1946.

In the Presence of:

Ralph E. Bristol

Clarence I. Justheim(L.S.)
First Party
E.I. duPont de Nemours and Company

(No seal)

By F.O. Evans
Directors, Service Dept.
Second Party

Cmt Layer ?

Approved for Execution
A.W. ?
M.J. Collins

STATE OF UTAH)
: ss.
COUNTY OF SALT LAKE,)

On this 6th day of April, A.D. 1946, personally appeared before me Clarence I. Justheim, one of the signers of the foregoing instrument as First Party thereto, who duly acknowledged to me that he executed the same.

(SEAL)

Frank A. Johnson
Notary Public
Residing at Salt Lake City, Utah

My commission Expires: June 16, 1948.

Recorded at the request of Day, Hoppaugh, Mark & Johnson, April 8, A.D. 1946 at 3:30 o'clock P.M.

Mae R. Tree, County Recorder.

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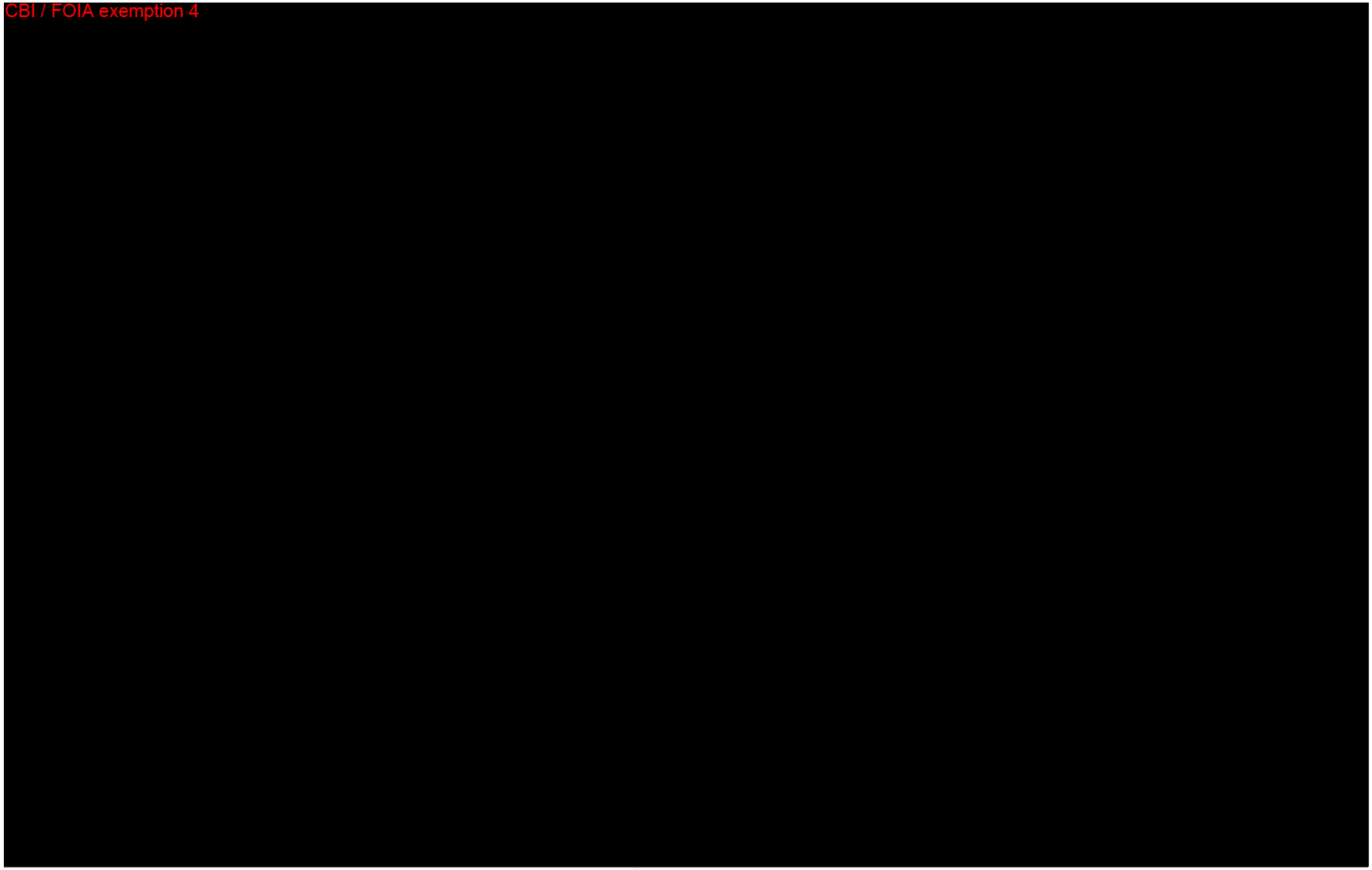
TAB 4


CBI / FOIA exemption 4

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TAB 5

Elmer Olsen

John B. Olsen
AmridOlsen

STATE OF UTAH, (
: ss.
COUNTY OF SUMMIT.)

On this 21st day of February, A.D., 1940, personally appeared before me, John B. Olsen and Amrie Olsen, his wife, the signers of the foregoing instrument who duly acknowledged to me that they executed the same.

(SEAL)

Monza C. Taylor
Notary Public.

Residence: Kamas, Utah
My commission expires July 16th, 1943.

---oOo---

Recorded at the request of Arthur Birch, May 8, A.D. 1947 at 9 o'clock A.M.

Mae R. Tree, County Recorder.

Entry No 76102.

D E E D

E.I. duPont de Nemours and Company, a corporation of the State of Delaware, of Wilmington, Delaware, the Grantor, hereby grants, bargains, sells and conveys to Clarence I. Justheim, residing at 2030 Westminister Ave, Salt Lake City, P.O. Box 1981, Salt Lake City 13, the Grantee, for the sum of Twenty-five thousand Dollars ($25,000.00), lawful money of the United States to it paid, receipt of which is hereby acknowledged, the following described tracts of land in Summit County, Utah:

Parcel No. 1: Commencing at the N.W. corner of the SW¼ of the NW¼ of Sec., 10, Township 2 South, Range 4 East, Salt Lake Meridian, and extending thence East ten hundred fifty-four and seven tenths (1054.7) feet to a point; thence S. 61°00' W. seven hundred and thirty-one and nineteenths (731.9) feet to a point; thence N. 41°24' W. two hundred and ten (210) feet to a point; thence S. 59°13' W. three hundred twenty and thirty-four hundredths (320.34) feet to a point; thence North three hundred sixteen and fifty-five hundredths (316.55) feet, more or less, to the place of beginning, containing five and twenty-six one-hundredths (5.26) acres.

Parcel No.2: Commencing at a point 160 feet south of the northeast corner of Section Nine, Township 2 South, Range 4 East of the Salt Lake Base and Meridian, said point being in the center of the old Utah Central Railroad grade, and running thence South along the East line of said Section 1160, feet to the Southeast corner of the NE¼ of the NE¼ of said Section Nine; thence West along the south line of said NE¼ of NE¼ of said Section Nine 745 feet; thence North 1169-½ feet to the center of said Utah Central grade; thence East along the center of said grade 745 feet to the place of beginning, containing 20 acres.

Parcel No. 3: The South Half of the Northeast quarter of Section Nine (9) Township two (2) South, Range Four (4) East, Salt Lake Base and Meridian, (containing eighty (80) acres, patented); and the North Half of the Northwest Quarter of Section Ten (10), Township Two (2) South, Range Four (4) East Salt Lake Base and Meridian, (containing eighty (80) acres, patented).

EXCEPTING from the land hereinbefore described that certain perpetual easement for a right of way for the construction, operation, maintenance, repair, renewal and reconstruction of railroad tracks granted by the Grasselli Chemical Company, a corporation of Utah, to Union Pacific Railroad Company by deed dated July 13, 1926, and recorded in Book N, Pages 580-1, of the deed records in the Recorder's Office of Summit County, Utah, to which recorded deed reference is made for more particular description; and excepting also the right of way for public highway purposes granted to Summit County, a municipal corporation of the State of Utah, by the said The Grasselli Chemical Company by deed dated December 17, 1927, recorded in Book F, Page 3 and 4, of said records, to which recorded deed refrsence is made for more particular description.

Said land and premises are conveyed Subject to legal highways, toall easements, restrictions, covenants, agreementsand conditions of record, and without limiting the generality of the foregoing, to the rights of the Utah Central Railway Company, the Echo and Park City Railway Company and the Union Pacific Railway Company, their successors and assigns, in, to and across portions of said premises, to certain easements heretofore granted to Daly - Judge Mining Company, Anchor Mining Company, Daly -West Mining Co., Silver King Mining Company, Keith Kearns Mining Company, Silver King Coalition Mines Company, Ontario Silver Mining Company and Daly Mining Company, over and upon a portion of said premises, and to a certain agreement dated January 12, 1916, between Broadwater Mills Company, and the Daly Judge Mining Company, the Daly West Mining Company, and the Silver King Coalition Mines Company, corporation doing business in Park City, Utah, their successors and assigns.

TOGETHER with all the right, title and interest of the Grantor herein in and to said premises.

IN WITNESS WHEREOF, the said E. I. duPont deNemours and Company has hereunto caused its name to be subscribed and its corporate seal affixed by its Vice-President, this 17th day of April, 1947.

E.I. DuPont deNemours and Company
By. W.F. Harrington
Vice President

Attest: F.G. Hess
Assistant Secretary.

(SEAL)

STATE OF DELAWARE

COUNTY OF NEW CASTLE, SS.

On the 17th day of April, 1947, personally appeared before me W.F. Harrington, who, being by me duly sworn, did say that he is a Vice- President of E. I. duPont de Nemours and Company Grantor in the foregoing instrument named, and that said instrument was signed in behalf of said corporation by authority of its Board of Directors, and said W.F. Harrington acknowledged to me that said corporation executed the same.

My commission expires May 1, 1947, and I reside in the City of Wilmington, County of New Castle and State of Delaware.

James Colhoun
Notary Public.

(SEAL)

$27.50 Revenue Stamps.

approved for execution:
W.B. Johnson
M. Holland
EA 4/11
Legal estate division.

---oOo---

Recorded at the request of Clarence I. Justheim May 12, A.D. 1947 at 10 o'clock A.M.

Mae/Tree , County Recorder.

ENTRY No. 76108. $1.65 Revenue Stamps.

WARRANTY DEED

J. OWEN GIBBONS and ERMA GIBBONS, husband and wife, grantors of Oakley, Summit County, State of Utah, hereby convey and warrant to Elmo R. Hoyt and Irene S. Hoyt, husband and wife, with full rights of survivorship, as joint tenants, but not as tenants in common, Grantees of Kamas, Summit County, State of Utah, for the sum of ten dollars, the following described tract of land situated in Summit County, State of Utah, to-wit:

Commencing at a point 150 feet North of the south-east corner of Block 41, Kamas Townsite Survey, and running thence North 65.5 feet, thence west 15 rods; thence South 65.5 feet, thence East 15 rods to the place of beginning, said property being situated in Section 17, Township 2 South, Range 6 East, Salt Lake Base and Meridian.

Together with a right of way commencing at a point 150 feet North of the south-east corner of Block 41, Kamas, Townsite Survey, and running thence South Ten feet, thence west 15 rods, thence North 10 feet, thence east 15 rods; to the place of beginning.

WITNESS the hands of said grantors this 5th day of March, A.D., 1947.

Signed in the presence of:

J. Owen Gibbons
Erma Gibbons

STATE OF UTAH,)
: ss.
COUNTY OF SUMMIT,)

On this 5th day of March, A.D. 1947, personally appeared before me, J. Owen Gibbons and Erma Gibbons, husband and wife, the signers of the foregoing instrument who duly acknowledged to me that they executed the same.

(SEAL)

Moses C. Taylor, Notary Public.

Residence: Kamas, Utah
My commission expires July 15th, 1950.

Recorded at the request of Kamas State Bank, May 13, A.D. 1947 at 10 o'clock A.M.

Mae R. Tree, County Recorder.

Entry No. 76113. WARRANTY DEED

CLAUDE H. HAMBLIN and ORA M. HAMBLIN, husband and wife, of Lyman, Uinta County, State of Wyoming, Grantors, Convey and warrant to Roy O. Bullock and Ida Bullock, his wife, as joint tenants and not as tenants in common and to the survivor thereof, Grantees, of Lonetree, Uinta County, State of Wyoming, for the sum of One Dollar and other good and valuable consideration, the following described tract of land in Summit County, State of Utah:

All of Section Thirty-two (32), (except right of way conveyed to United States of America by deed recorded in Book T, Page 74), in Township 3 North, Range 16 East of the Salt Lake Meridian, in Summit County, State of Utah.

Subject to taxes after the year 1946.

WITNESS the hands of said grantors , this 5th day of May, A.D. 1947.

Signed in the Presence of:
D. Eugene Livingston

Claude H. Hamblin
Claude H. Hamblin

Ora M. Hamblin
Ora M. Hamblin

STATE OF UTAH,)
: ss.
COUNTY OF SALT LAKE.)

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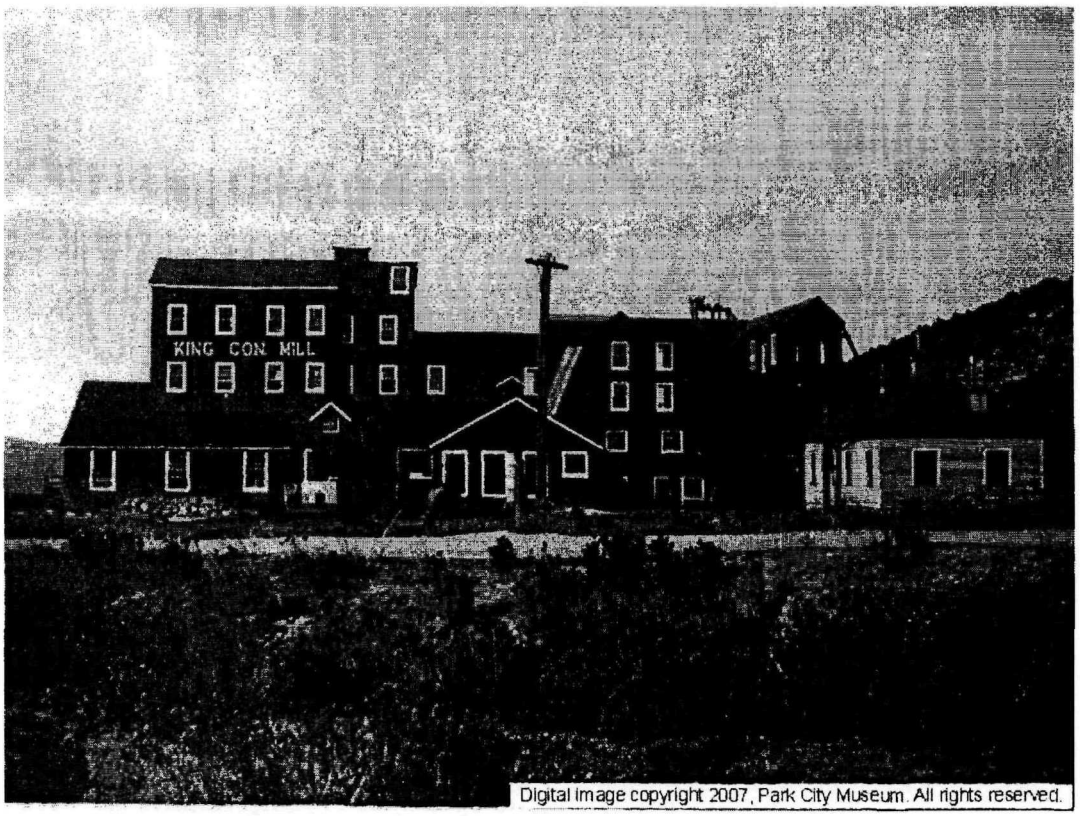
TAB 6

Park City Historical Society & Museum

Silver King Consolidated Mill



Title	Silver King Consolidated Mill
Subject	Mining Park City, Utah
Description	Silver King Consolidated Mill & lower tram terminal. Exterior, 4-story bldg. with dark vertical wood siding, white window frames, pyramid-style house at far right, telephone pole in center front. King Con Mill was purchased from Grasselli Chemical Co. in the 1920s and remodeled. The mill was located north of Union Pacific Depot at the foot of Masonic Hill.
Publisher	Park City Historical Society & Museum
Date Original	191?-194?
Date Digital	2005-04-25
Type	Image;
Format	Image/jpeg
Digitization Specifications	Originals scanned at 800 ppi on an Epson Perfection 3200 Photo flatbed scanner. 8-bit file. Files saved as uncompressed TIFF, re-sized and converted to JPEG in Photoshop CS2
Resource Identifier	Digi-3-21.jpg
Language	Eng
Collection	Jordanelle Special Service District Collection
Rights Management	Digital image copyright Park City Historical Society & Museum, Jordanelle Special Service District Collection. All rights reserved.
Contributing Institution	Park City Historical Society & Museum
Source Format	Negative, Film;
Source size	3.5" x 4.5";

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TAB 7

DU PONT ANNOUNCES DEAL FOR GRASSELLI

Wall Street Hears Transaction Was Submitted to Government for Approval.

STOCK ADVANCES SHARPLY

Corporation's Shares Close Near Year's High—Assets Total $56,728,601.

Special to The New York Times.

WILMINGTON, Del., Oct. 23.—Plans for consolidation of E. I. du Pont de Nemours & Co. and the Grasselli Chemical Company were announced from the offices of the former tonight in the following statement:

"An agreement has been entered into between E. I. du Pont de Nemours & Co. and the Grasselli Chemical Company of Cleveland, having as its object a consolidation of the interests of the two companies.

"This agreement, if approved by the stockholders of the Grasselli Company at a meeting to be called for Nov. 10, provides for the retirement of Grasselli's 6 per cent. preferred stock on Dec. 31 at $110 a share, plus accumulated dividends. The Grasselli Company will receive, for subsequent distribution to its common stockholders, common shares without par value of the du Pont Company in number equal to one-fifth of the number of Grasselli's outstanding common shares without par value. It is further understood that the combined heavy chemical business of the two companies will be carried on under the long established name of the Grasselli Company, and that no important changes are contemplated in the present administration of these activities. The interest in the Grasselli Dyestuffs Corporation and other affiliated dyestuffs interests, heretofore owned by the Grasselli Chemical Company, have been disposed of by the Grasselli Company and, therefore, not included in the proposed consolidation.

"It is expected that the consolidation will be complete on or before the close of the year."

E. I. du Pont de Nemours & Co. will acquire control of the Grasselli Chemical Company, provided the transaction meets with the approval of the United States Department of Justice, according to reports received in Wall Street yesterday.

A report from Washington yesterday said that the merger was being considered by the Attorney General's office and that an opinion would be issued soon. It was assumed that the Department of Justice had been asked by the du Pont interests to pass on the legality of the proposed transaction.

Reports that Grasselli would be merged with another company have been current in the financial district for some time and have been accompanied by a sharp advance in the Grasselli shares. They closed on the Stock Exchange yesterday at 87⅞, within 1⅛ points of the high for the year. The company has outstanding 746,960 shares of no-par common stock and $13,724,200 of 6 per cent. cumulative preferred. Total assets, according to the latest balance sheet, were $56,728,601.

The company manufactures heavy chemicals, fertilizers, zinc metal, zinc dust and explosives. It has factories at Meadow Brook and Weirton, W. Va.; East Chicago, Fortville and Terre Haute, Ind.; Grasselli, N. J.; Quaker Falls, Sinnemahoning, New Castle, Beaver Falls and Walford, Pa.; Lockland, Canton, Niles and Toledo, Ohio,; Wurtland, Ky.; Dothan, Gadsden and Birmingham, Ala.; Seneca, Ill., and Hamilton, Ontario.

The New York Times
Published: October 24, 1928

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TAB 8

STORY,
CROW &
GARDNER
Attorneys at Law
Salt Lake City, Utah

IN THE DISTRICT COURT OF THE THIRD JUDICIAL DISTRICT OF THE STATE OF UTAH, IN AND FOR THE COUNTY OF SUMMIT.

IN THE MATTER OF THE VOLUNTARY DISSOLUTION OF THE GRASSELLI CHEMICAL COMPANY, a corporation.	APPLICATION FOR VOLUNTARY DISSOLUTION

TO THE HONORABLE JUDGES OF THE DISTRICT COURT OF THE THIRD JUDICIAL DISTRICT OF THE STATE OF UTAH IN AND FOR THE COUNTY OF SUMMIT:

Your petitioners, E. R. Grasselli, T. S. Grasselli, E. R. Bailey, W. T. Cashman, and Wm. Story, Jr., respectfully show:

1. The petitioners are each and all duly elected, qualified and acting members of the board of directors of The Grasselli Chemical Company, a corporation organized and existing under the laws of the State of Utah, having its principal office and place of business within said state in Park City, County of Summit, and comprise the entire membership of such board.

2. At a special meeting of the stockholders of said corporation held at the office thereof in the City of Cleveland, State of Ohio, on the 13th day of February, 1929, at which all the shares of stock of the said corporation then issued and outstanding were represented by the owners or holders thereof in person or by proxy, a preamble and resolution in words and figures following was duly adopted by unanimous vote of all the shareholders of the corporation present at said meeting:

> WHEREAS, the purpose for which this corporation was organized has been accomplished; and
>
> WHEREAS, the company has no outstanding indebtedness of any nature or description whatever, all claims and demands against the corporation having been satisfied and discharged in full and pursuant to resolutions heretofore adopted by the stockholders and board of directors of the

STORY, CROW & GARDNER
Attorneys at Law
Salt Lake City, Utah

corporation, respectively, all its assets have been distributed among its shareholders as a liquidating dividend in anticipation of voluntary dissolution of the company;

RESOLVED , That this corporation be dissolved in the manner provided by Chapter 72 of Title 117 of the Compiled Laws of Utah, 1917, for voluntary dissolution of corporations organized under the laws of said state, and that the Board of Directors of this corporation be, and they are directed hereby to do and perform any and all acts and things necessary and/or desirable to be done to carry this resolution into effect.

The said corporation has no indebtedness whatever, all claims and demands of every kind or nature against it having been paid, satisfied and discharged in full prior to filing of this petition.

WHEREFORE, the petitioners pray that an order may be entered herein directing that this petition be filed by the clerk of said court, and also directing the said clerk to publish notice hereof in some newspaper having general circulation in the County of Summit for a period of not less than thirty (30) nor more than fifty (50) days; that if any person shall file objection to the voluntary dissolution of said corporation within the time allowed by law so to do this court may fix a time for hearing of such objection, and that if no objection shall be filed the court may proceed and determine this petition ex parte and order the dissolution of said corporation; and for general relief in the premises.

Wm Story Jr.
Attorney for Petitioners

P.O. Address: 1007 Boston Bldg., Salt Lake City, Utah.

STORY, CROW & GARDNER
Attorneys at Law
Salt Lake City, Utah

STATE OF UTAH,)
: SS.
COUNTY OF SALT LAKE)

Wm. Story, Jr., being duly sworn, deposes and says: That he is one of the petitioners named in the foregoing petition, and that he makes this verification for and on behalf of himself and his co-petitioners, as members of the board of directors of said The Grasselli Chemical Company, being thereunto duly authorized by resolution of said board; that he has read the foregoing petition and knows the contents thereof, and that the same is true of his own knowledge, except as to the matters therein alleged on information and belief, and as to such matters he believes it to be true.

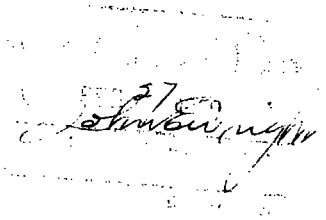
Wm Story Jr

Subscribed and sworn to before me this 15th day of Feb., 1929.

Charles D. Moore

.. NOTARY PUBLIC ..

Residing at Salt Lake City, Utah.



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TAB 9

STORY,
~~CROW &~~
~~GARDNER~~
Attorneys at Law
Salt Lake City, Utah

IN THE DISTRICT COURT OF THE THIRD JUDICIAL DISTRICT OF THE STATE OF UTAH, IN AND FOR THE COUNTY OF SUMMIT

IN THE MATTER OF THE VOLUNTARY DISSOLUTION OF THE GRASSELLI CHEMICAL COMPANY, a corporation. : FINDINGS AND DECREE

BE IT REMEMBERED that the above entitled matter came on for hearing before the court on this 16th day of April, A. D. 1929, upon the petition of the applicant herein, and it appearing that the notice of said application has been published by the clerk of this court in the ~~Park Record~~ Summit County Bee, a weekly newspaper published at ~~Park City~~ Coalville in the said County of Summit, and having a general circulation therein, for more than thirty (30) days prior to the date hereof, in accordance with the previous order of this court made and entered herein on, to-wit, the 19th day of February, 1929; and it also appearing that the time within which objection to the granting of said petition may be filed herein by creditors or other persons interested in said corporation as stockholders, or otherwise, has now expired, and that no objection to the granting of said application has been made by any person interested in said corporation as a creditor thereof, or otherwise, and The Grasselli Chemical Company, applicant herein, having introduced in open court oral and documentary evidence in support of its application for voluntary dissolution, the court, being now fully advised in the premises, doth find:

First: That each and all of the allegations of the petition herein are true; that the petitioner herein, The Grasselli Chemical Company, is a corporation duly organized and existing under the laws of the State of Utah, having its

STORY,
CROW &
GARDNER
Attorneys at Law
Salt Lake City, Utah

principal office and place of business within said State in Park City in the County of Summit; that at a special meeting of the stockholders of said corporation, held at the principal office of the company in the City of Cleveland, State of Ohio, on, to-wit, the 13th day of February, 1929, at which all shares of the stock of said corporation then issued and outstanding were represented by the owners thereof in person or by proxy, it was duly resolved by the unanimous vote of all the shareholders of the corporation present at said meeting that said corporation should be dissolved in the manner provided by Chapter 72 Compiled Laws of Utah, 1917, as of the 13th day of February, 1929, and that the board of directors and officers of the said corporation be authorized and instructed to apply to this court in the manner required by law to dissolve the said corporation and wind up its business affairs.

Second: That prior to the date of the filing of applicant's petition herein, to-wit, February 27th, 1929, all indebtedness of and claims and demands of every kind and nature heretofore existing against the said corporation were paid and satisfied in full, and all of its assets were distributed among the shareholders of said company or their nominees as a liquidating dividend in anticipation of voluntary dissolution thereof, and that no legal objection exists to the voluntary dissolution of the said corporation as prayed in said petition.

WHEREFORE, IT IS CONSIDERED, ADJUDGED AND DECLARED by the court that The Grasselli Chemical Company, the petitioner herein, be and the same is hereby dissolved; that the acts of the directors and officers of the said corporation in the way of making distribution of the assets of said corporation pro rata among the stockholders entitled to receive the same

STORY, CROW & GARDNER
Attorneys at Law
Salt Lake City, Utah

be and they are hereby approved and confirmed; and, further, that the directors and officers thereof be and they are hereby authorized and directed to do any and all things necessary to wind up the business affairs of said corporation in the manner provided by law.

Dated at Coalville, Utah, this 16th day of April, 1929.

JUDGE